TECH SUPERGUIDE: BEST PRODUCTS IN 35 CATEGORIES!

apc

January 2009

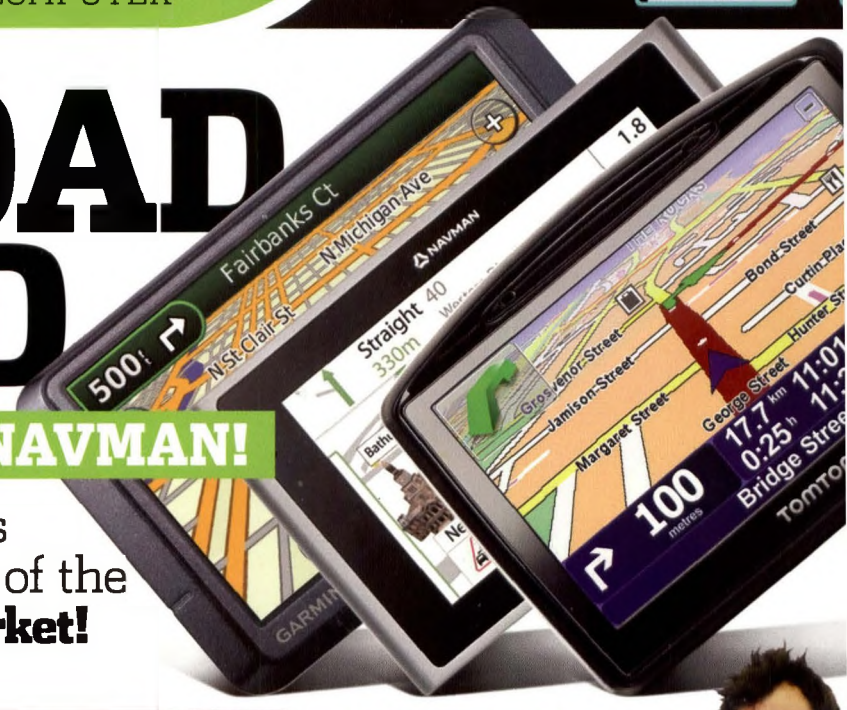
AUSTRALIAN PERSONAL COMPUTER

Essential info!

CONNECTED HOME

Network your home: room by room!

GPS: ROAD TESTED



TOMTOM vs GARMIN vs NAVMAN!

Don't drive off on your holidays before reading our comparison of the **best new GPS devices on the market!**

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Vol 29 No 01 / JANUARY 2009
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PLAYABLE DEMO!
JAMES BOND 007: QUANTUM OF SOLACE
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Some programs on this disc require online registration. Disc is not to be sold separately.

Hot Deals!

TECH BARGAINS MAVERICK

How a 25-year-old genius is undercutting tech retailers

Hot Tech!

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THE GEAR, THE GADGETS, THE TRIBE

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Throw that tattered directory away! We look at seven of the latest portable nav devices to help you find your way.

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50 BEST TECH RETURNS!

The most comprehensive guide to the best technology: over 35 product categories!

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The new **gOS 3.0** puts Google Apps on your desktop!

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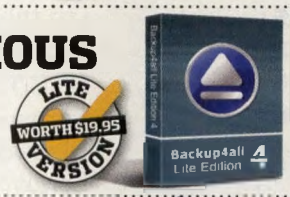

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File Replacer 1.01 helps you find and update copies of the same file!

FREE FULL GAME!

SID MEIER'S COLONIZATION

Create a new nation in this classic strategy game!

PLAYABLE DEMO!

007: QUANTUM OF SOLACE

Check out our playable demo of the new James Bond!

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When you see this icon throughout APC, it means bonus software is included on the cover disc.

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- Java Runtime Environment 6 (Update 7) for Windows
- Linux Kernel 2.6.27
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- Microsoft .NET Framework 2.0
- Microsoft .NET Framework 3.5
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- Mozilla Firefox 3.0.1 for Windows
- OpenOffice.org 3.0
- PC Inspector Smart Recovery 4.5
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- Sid Meier's Colonization
- Spybot — Search and Destroy 1.6.0.30
- Undelete Plus 2.97
- UnRarX 2.2
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- VLC media player 0.8.6i for Windows
- Vuze for Linux 3.1.1
- Vuze for Mac OS X 3.1.1
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- XviD 1.1.3
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06 editorial

TONY SARNO

NOT ONLY ARE APC READERS GLORIOUSLY PEDANTIC, BUT THEY ARE PASSIONATE

Last month I asked you to send me feedback on the magazine's redesign. In the interests of openness I will publish some of the replies. Reader John Robertson wrote: "I have been an *APC* reader for longer than I would like to admit (probably 30 years), and this is the first time I have had to put down the magazine after 11 pages due to eye fatigue."

Now, whenever you change a typeface in a publication, negative feedback is to be expected. It's not so much that the new typeface is better or worse, but people generally don't like changes to a familiar element of design. I have had this happen over and over in various publications.

What I didn't expect this time was that the responses would be so typically *APC*. At any other magazine, some readers would have said they hated the typeface and left it at that. But in Robertson's case, he went to the trouble of comparing the font size from the previous issue with that in the new one. He wrote: "The print height is still 1.40mm but the print thickness is now 0.20 instead of 0.25. I also noticed that the line pitching has increased from 3.50 to 3.60. As I wear multi-focal specs (for over 10 years), I believe that the print changes effectively change the apparent contrast and hence my fatigue. No, I don't need to visit the optician."

He made me wonder how he'd so accurately measured the dimensions of the typeface. Not only are *APC* readers gloriously pedantic, but they are passionate. Another reader, Peter, wrote "You are a bloody idiot. I can understand you redesigning your magazine, but why change the font so that half your readers can't read it?" I've left out the email's nasty bits.

OK, point taken. For the redesign, we switched to a smaller contemporary font to cram more text on pages, but in response to your feedback, you will notice in this January issue we have moved to a bigger typeface. By the way, the overall response to *APC*'s redesign was overwhelmingly positive, but since we are here to serve you as best we can, we'll listen to any feedback, no matter how many people send it in.

tony@acpmagazines.net

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LOOK OUT FOR THESE

We reserve the Editor's Choice award for the very best products available on the market.

APC's Highly Recommended award is bestowed upon products that are of great overall quality.

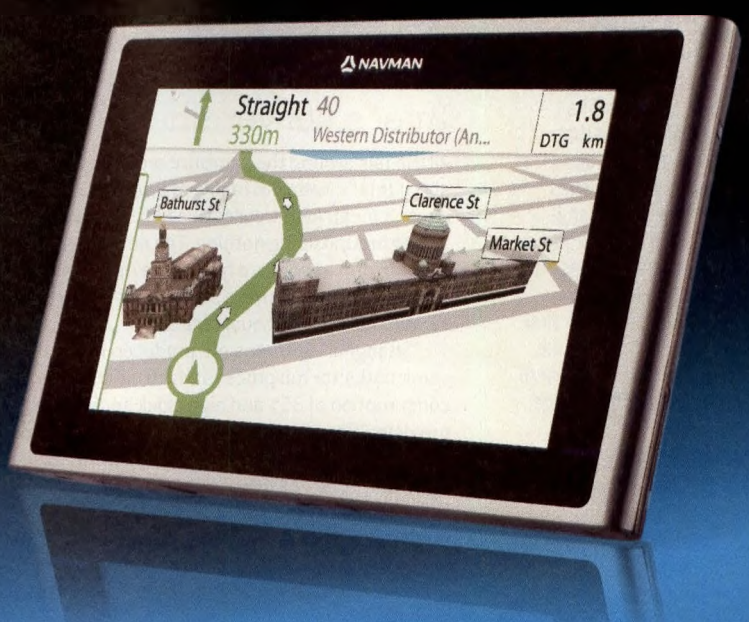
APC JANUARY AWARDS

NAVTEQ MAPS

NAVMAN

S-SERIES PLATINUM

If you want the benchmark in GPS, you want a Navman.



The new Navman S-Series Platinum takes GPS further than ever before. Slim and stylish, it features a modern glide touchscreen for smooth navigation, premium safety alerts including school zones, speed and red light camera warnings, 3D landmarks and junction views, as well as comprehensive mapping for superior guidance. To find your nearest retailer visit **navman.com.au**

technotes

THE NEW, THE NEWS & THE QUIRKY VIEWS

Bytesize

Mini news

ANDROID KILL SWITCH FOUND

Google has the power to remove malicious apps from Android phones without the permission (or even the knowledge) of the user. While we've been expecting something along these lines, Google has at least promised it will try to refund customers who have lost apps they paid for.

iPHONE MORE RELIABLE

A warranty seller in the US has analysed data from 13,000 handsets it has insured and found that iPhones are twice as reliable as BlackBerries during their first year. It found that 5.6% of iPhones, 11.2% of BlackBerries and 16.2% of Palm Treos malfunctioned in their first year. As well, more of the iPhone failures (12%) were due to accidental damage.

WINDOWS 3.x IS DEAD

Incredible as it may seem, Microsoft has only now officially discontinued licensing for Windows 3.x, the OS it first launched in the early 1990s. The original Windows had lived on as an embedded OS in cash registers and ticketing systems around the world, where it had proved fast and reliable.

HOT PRODUCT

$199
Available from www.toshiba.com.au

Upscaling DVD player

Having lost out on HD-DVD, Toshiba might be onto something.

One of the surprises of the HDTV revolution is that people expected high-definition movies to be vastly superior to standard definition movies when viewed on an HDTV set. Not so, with even standard HDTVs doing such a good job of upscaling standard video from a DVD player that it can be hard to tell the difference.

So Toshiba has seized on the opportunity to bring out a DVD player that is specifically designed to improve standard video for showing on HDTV. At $199, the Toshiba XD-E500 upscaling DVD player is considerably cheaper than a Blu-ray player, with the added advantage that you don't need to replace your existing DVD collection to watch high-definition video.

Rather then simply smoothing the image, the XD-500E uses three processing technologies to intelligently enhance detail, colour and contrast to provide "near the picture quality" of native HD. There is no doubt that the XDE processing algorithms are good. Jaggies and mosquito noise were significantly reduced whilst detail was preserved. However, no matter what you do, you cannot get something from nothing. On Blu-ray you could see lettering on objects and details of reflections in the water whereas the XDE upscaled video looked sharp but lacked detail and crispness.

For most people, though, the XD-E500 will produce really good pictures with the advantage of being able to enjoy the thousands of titles available only on DVD.

David Neiger

HOT PRODUCT

AMD's "Shanghai"

AMD looks to "Shanghai" Intel's server share.

$2,200
(US dollars)
Available now from www.amd.com

All the talk around the campfire recently has been about Intel's Nehalem family of processors, but that doesn't mean AMD's collective boffins have been sitting around doing nothing. The new "Shanghai" Opteron processors are hitting the market late 2008, with a complete platform solution for multi processor servers coming first quarter 2009.

"Shanghai" Opterons are produced with a new 45nm semiconductor fab process which yields lower power consumption of 35% and high clock speeds compared to the previous "Barcelona" incarnation. The new series will be clocked at up to 2.7GHz, and is available for 2, 4 and 8-way servers. Cache has been tripled to 6MB, and support for HyperTransport 1.0 and DDR2 is baked in. These Opteron models won't be seeing the new HyperTransport 3.0 bus until mid next year. AMD claims not just a 35% increase in clock speeds, but a 35% increase in performance as a whole: things are looking up.

Even better news is that the 45nm desktop processors codenamed "Deneb" will be hitting the stores around the same time. With similarly bumped specs, perhaps Deneb will be AMD's return shots for the desktop processor war?

TOP 10 ...AUSSIE iPHONE APPS

Australian iPhone developers are building local apps that help Aussies make the most of their iPhones.

1 METRO MELBOURNE
Tram timetables, directions and suggestions on the best stops.

2 METRO PERTH
The same as the Melbourne version but for Perth, obviously.

3 iTT PERTH
Location-aware public transport info for the city of Perth.

4 TUBE SYDNEY
A point-to-point directional guide for Sydney streets.

5 POCKET WEATHER AU
Uses Bureau of Meteorology data for local accuracy.

6 OZ WEATHER
Gives local weather based on your GPS coordinates.

7 AUSTRALIAN POSTCODES
Search for postcodes by number or name.

8 QANTAS MOBILE
The Qantas iPhone app lets you view all Qantas timetables.

9 AUSSIE SLANG
A simple translator for Aussie slang. Great for tourists.

10 TOILET MATE
GPS functionality directs you to the nearest public loo.

TERMINATED
Many workers in the technology industry have lost their jobs due to the financial crisis... they'll be back in the next boom.

Silicon Valley sackings 2.0

Hard financial times hit the IT sector.

It feels a bit like the dot.com crash again, with hundreds of global tech companies firing workers with silly euphemisms or rationalisations.

The head of eBay, Alan Marks, has invented a less painful word for layoffs: "simplification." In a less-than-simple 1,078 word memo to staff last month he explained that eBay was undergoing simplification that would result in 15 out of 105 people losing their jobs.

In Israel, mobile VoIP start-up Fring fired ten people, explaining to them that the company was doing very well, thanks to them, but they had to go to ensure Fring kept doing well in 2009.

Palm Computing, makers of handhelds, is letting go of around 100 staff, seeming to blame them for its troubles, and when Fast Company publisher laid off 20 employees last month, CEO John Koten was asked why he didn't cut the company's generous free food and snacks instead. He said: "I want to do everything possible to ensure that this is to remain a very special place to work."

One sacked employee of a Silicon Valley startup shot dead his CEO, VP of operations and the human resources manager.

DON'T WORRY ABOUT WI-FI

Global health body settles the Wi-Fi debate.

The last decade has seen exponential growth in the use of wireless telecommunications, first with mobile phones and then wireless internet. Simultaneously, the number of people convinced that such wireless communications were causing them health problems skyrocketed.

But now you can switch your router back on and re-insert that dongle because the World Health Organisation (WHO) has hopefully settled the debate once and for all. Wi-Fi has been given the all clear.

In a report released in September that's based on 10 years of research, WHO found that non-ionising radiation from wireless routers varies between just 0.002 per cent and two per cent of international safe-exposure guidelines. The radiation that we're exposed to from Wi-Fi stations is less than 20 per cent of that produced by standard FM radio and TV signals.

As the report states, "Recent surveys have indicated that RF [radio-frequency fields] exposure from base stations and wireless technologies in publicly accessible areas, including schools and hospitals, is normally thousands of times below international standards."

In other words, the amount of radiation emitted by Wi-Fi is small enough to be almost negligible, and poses no threat.

Critics also need not worry about WiMax, as it uses the same low-frequency radio waves to operate.

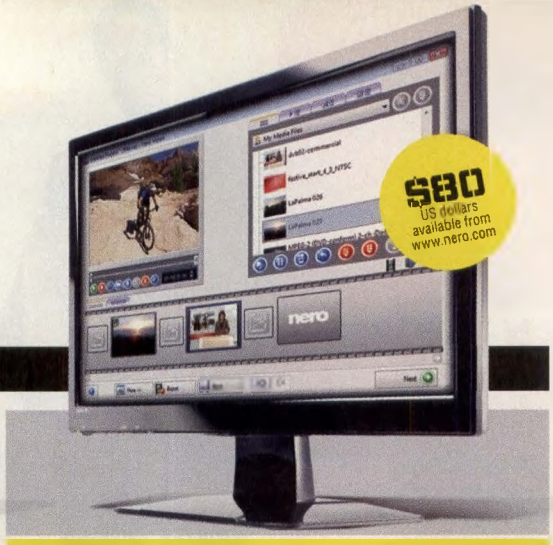
TRIBAL COUNCIL...

APCMAG.COM ASKED
Should Barack Obama be able to use his own computer and BlackBerry?
YOU REPLIED
73% 27%

APCMAG.COM ASKED
iiNet was sued for copyright infringement. Is iiNet to blame for users' BitTorrent piracy?
YOU REPLIED
85% 15%

HEAD2HEAD

We pit the newest disc authoring and burning suites Roxio Creator and Nero Roxio against each other. Full reviews on page 39.



	ROXIO CREATOR 2009	NERO 9
What's new	Single-layer and dual-layer Blu-ray data disc support including for BD-AV format encoding and transcoding in MPEG-4 AVC (also known as H.264).	Supports Blu-ray but not BD-AV format. Uniquely offers TV recording and multichannel audio editing.
Pros	Creates professional-looking content with wizards that make it extremely easy for neophytes. Navigation is superb, based on a task metaphor that's easy to follow. Comes with a back-up system for discs and hard drives.	Good audio creation components, while some disc burning geeks swear the Nero burning engine is the best and most stable. Media player features Gracenotes recognition for better music information.
Cons	Audio editing is Roxio's weakness, while its VideoWave video editing component is a sluggish resource hog.	Accused of bloat and user-unfriendliness in the past, continues the tradition. Also resets all file preferences to point to its own applications
And the winner is?	Roxio's more intuitive modules and no-hassle, professional-looking output makes it the more appealing package for users who want great results with minimal effort.	Nero 9 certainly does a lot, but it doesn't do any of it particularly well, and there's no reason to buy this suite when there are better options available elsewhere.

GOOGLE'S EYE IN THE SKY

Search giant's eagle-eyed new satellite begins focusing on us.

Google's intrusive Street View cars have become symbolic of the cynicism of its motto 'Don't be evil', but now the company has an even sharper eye in the sky. A brand-new Google satellite has begun beaming super-sharp images from space.

The GeoEye-1 launched in September, but it didn't begin taking images for Google's Earth application until 7 October. Its first snap? The illustrious university campus of Kutztown, Pennsylvania, as seen from 423 miles above earth, while moving at 4.5 miles per second.

The satellite is taking images at a far higher resolution than Google currently has on offer: 50cm per pixel. You can read the logo emblazoned on the college's American football pitch and even see people strolling the streets like ants. And these pictures are only the beginning. "We expect the quality of the imagery to get even better as we continue the calibration activity," GeoEye's vice president of operations, Brad Peterson, commented.There's only limited space in the sky, though, and the $500 million satellite isn't solely for Google's use: the search giant is the commercial sponsor of the GeoEye-1, whose main customer will be the US's National Geospatial Intelligence Agency.

Peterson is insistent that the GeoEye is not about snooping and espionage. "This is the opposite of a spy satellite," he told *Wired* magazine. "Spies don't put their info on the internet and sell imagery. We're an Earth-imaging satellite, and we can sell our imagery to customers around the world who have a need to map, measure and monitor things on the ground."

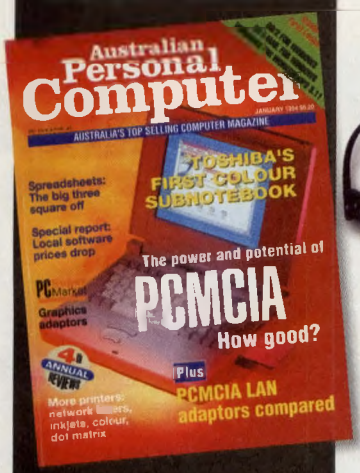
NUMBER CRUNCHING

1/3
OF THE WORLD'S POPULATION HAS NEVER MADE A TELEPHONE CALL

220,000,000
tonnes of old computer equipment is scrapped in the US every single year

20%
THE AMOUNT OF WOMEN IN AN AVERAGE COMPUTER CLASS

THE (A)PC REVOLUTION
JAN / 1994



CHICAGO ENTERS BETA TESTING

Early reports indicate that the next version of Windows is an evolutionary step up from Windows for Workgroups 3.11. Microsoft has begun beta testing on the product known as Chicago, which is touted as the PC's best opportunity to catch the Mac. Chicago, which is tipped to be called Windows 4.0, will be positioned as a universal client that will offer pre-emptive multitasking, plug-and-play identification and configuration of system board devices, the Win32\S subsystem, OLE 2.0, a new interface, the full MAPI (Messaging API) 1.0 subsystem, file names longer than 8.3 and better integration with Netware.

SPEEDY CD UPS PERFORMANCE

When it comes to moving data from disk to screen, CD-ROM drives have never been fleet-footed performers. However, CD-ROM may be finally finding its legs. Faster double-speed CD-ROM drives are now the norm, and Pioneer, NEC Technologies and Plextor (former Texel) are upping the ante again with triple and even quadruple-speed CD-ROMs.

HOT PRODUCT

D-Link VoiceCentre

The Holy Grail of VoIP phones.

Despite all the hype about VoIP, when small businesses look at the options for replacing their traditional phone system, they baulk at the complexity and costs of introducing business VoIP.

It was inevitable that Microsoft would target this area in partnership with hardware vendors.

Microsoft has joined up with D-Link in Australia to release a self-contained IP-PBX designed to be affordable for small businesses and easy to operate. The new VoiceCenter IP-PBX is an IP-based phone system that comes in bundles for five or ten users but can be expanded to cover up to 50 employees.

It consists of telephony hardware by D-Link and Response Point software by Microsoft. D-Link is the partner in Australia, although in the US Microsoft also ships Response Point with a couple of other hardware partners.

A base system for five users is expected to have an RRP of $3,500 when VoiceCenter goes on sale in February. The sharp pricing for the functionality delivered will be one of the key selling points of the system. "Why would you look at this?" says D-Link Australia's marketing director, Maurice Famularo. "It's very cost-effective for a small business. An IP-PBX is a big expense for a business trying to save money."

D-Link's VoiceCenter comes in two bundles, the DVX-2000MS-5 (for five users) and DVX-2000MS-10 (for ten). Each contains a PBX/Base Unit, PSTN Gateway, Microsoft Response Point phone system software and five or ten DPH-125MS IP Phones. Additional phones are expected to cost around $120-$130 each, with no extra licensing costs.

Mustknow

Essential Knowledge

WHY CUSTOMERS CALL TECH SUPPORT

Jack Molisani teaches how to reduce support costs through better documentation and training materials at Cal State University. He lists the top seven reasons customers call:

1. There is no user documentation for the product.
2. There is documentation but the procedure the customer wants is not in it.
3. The procedure is in the documentation but the customer never bothered to look for it.
4. The procedure is in the documentation and the customer actually looked in the manual, but couldn't find the desired information.
5. The procedure is in the documentation but the procedure is wrong (missing steps, screens have changed, etc).
6. The procedure is in the documentation but the procedure is so badly written that it couldn't be understood (this is different from #5).
7. There is no applicable procedure because the product can't do what the customer wants it to.

Topsite

URL of the month

BETTER WORLD BOOKS

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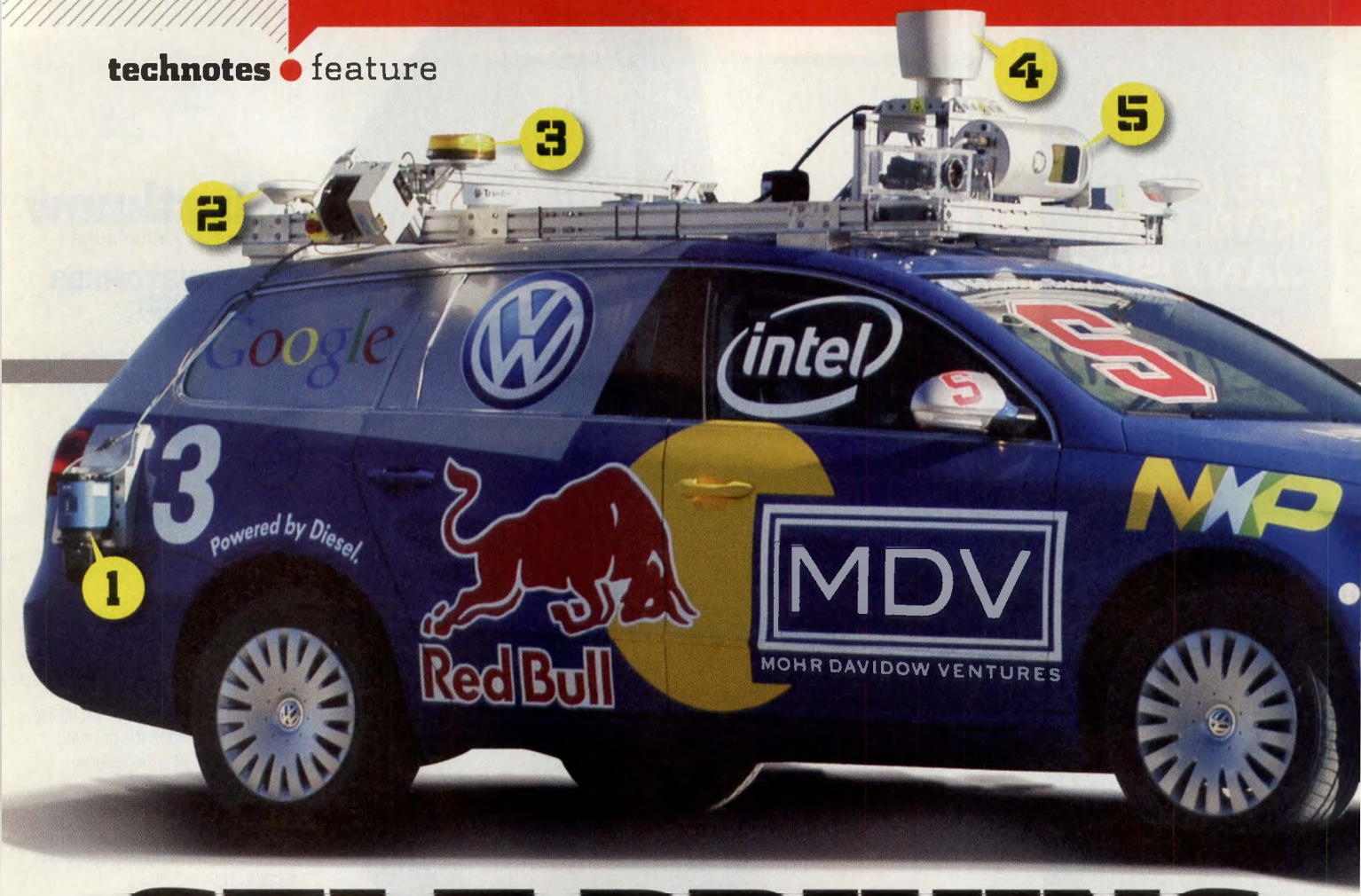


SELF-DRIVING ROBOT CARS

Stanford Uni's AI Lab has created two robot cars which can drive themselves without human intervention. We speak to their creator, **Mike Montemerlo.**

Mike Montemerlo knows all about the effort required for complex AI routines. He programmed the driving decisions for two of the most successful autonomous vehicles run in the DARPA Challenges, the famous US competition for cars able to drive unaided through a mock urban environment.

APC: Would you describe some of the technical functions in the Junior (pictured) and Stanley robotic cars and some of the challenges you had when writing the software code?

Mike Montemerlo: Software for robotic cars can be roughly broken up into two parts: perception and decision-making (sometimes called planning). The perception software takes in raw sensor data and builds a model of the world around the robot. In the case of autonomous driving, we are most interested in the hazards around the vehicle, such as kerbs, other cars, pedestrians, cyclists and sign posts. The decision-making software, or 'planner', combines this world model and its goal, and decides on an action to take that is safe, rule-abiding and moves the car towards the goal. Some of the specific tasks that Junior needs to handle while driving include obstacle detection and avoidance, localisation and lane centreing, detecting and tracking other vehicles, and planning routes to far-off checkpoints.

Robotic perception and decision making are very difficult in the real world because the real world is uncertain. Our sensors are noisy, and our actions don't always work out in the way we would expect. For this reason, we take a probabilistic approach to robotics, modelling the noise on our sensors and actions.

APC: Describe some of the programming that is required if you tell Junior: "Take me to Sydney". What are the differences in programming for the various tasks needed?

MM: Junior thinks about the problem at several different levels. First, he thinks about it on the global level, like your GPS device, guiding you from A to B. That's an easy problem to solve. The next level is Junior thinking of the world in terms of trajectories. He has a short — maybe 100-feet long — trajectory that he's planning in order to stay centred in the lane and avoid the curves, and he has to make decisions like, 'What lane should I be in to make the fastest

THE SENSORS

1. SICK LDLRS laser
2. Applanix INS
3. SICK LMS laser
4. Velodyne laser
5. Riegl laser
6. BOSCH radar
7. IBEO laser

AUTONOMOUS OPERATION

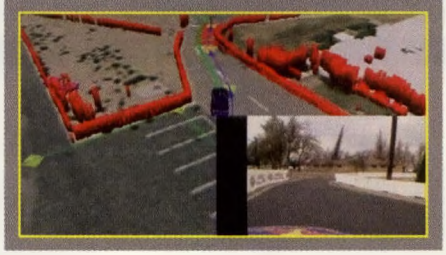
For a robotic car to be truly autonomous (and not just operated remotely), several key functions are required. For starters, sensors all around the vehicle must capture raw traffic and pedestrian data so that the car knows what is nearby. This data is captured by onboard computers and fed to the other systems on the car, which Montemerlo says is the most important aspect of autonomous operation. Next, perception modules on the vehicle are constantly reading GPS data to determine the car's relative position to the map.

During a test drive, Montemerlo noted how his software includes a map of the entire Stanford University campus, even though operating the autonomous car was only legal on a closed course — which happens to be the top floor of a parking garage. Next, navigation modules on the vehicle use the sensors and perception modules to actually determine where to go on the map. The data for surroundings and map location determine current position, but the navigation module uses algorithms to plan a route. Finally, the drive-by-wire interface is what connects all the AI code to the actual vehicle, controlling the brakes, steering wheel and turn signals.

HOW JUNIOR AND STANLEY SEE

64 lasers on the Junior robotic car are constantly scanning the surroundings, rotating at 10Hz and reading objects in a 60-metre radius around the car. During a test drive, any object within range of the vehicle appeared on a map displayed on an LCD screen in the back seat of the vehicle.

When a human passed in front of the vehicle, the sensors showed a red object in the proper shape in front of the car. All obstructions are shown in red, including kerbs, people and other cars. The Junior robotic car has an all-stop that prevents the vehicle from moving if there is a red object detected. For safety reasons, there is also a large red button near the steering wheel that an operator can use as an all-stop. This button turns off all computer-assisted operation and allows a driver to take control of the vehicle.



progress?' and 'Will I have enough time to get back in the lane I want to be in to make my turn?'

APC: What are some of the complexities associated with autonomous driving?

MM: There are many. At this level, what the Urban Challenge demonstrated, cars have to stay in their lanes, merge safely, not run into other cars. This generates a certain level of reliability, but in order to really drive well you have to be able to drive with other humans drivers. You have to be able to understand and predict the behaviour of pedestrians and bicycles that the [robotic] cars can't see right now. And you have to be capable of handling any event that happens during regular driving — like the mattress that falls off the truck in front of you as you burn down the highway. Instead of seeing the world as black and white where there's one right answer and the rest are wrong, you take the world as noisy and simulate probability distribution for the answers.

APC: What are some of the technical challenges involved when a car needs to be able to sense the road?

MM: We take for granted how easy it is for us as humans to look at a street scene and understand what we are seeing. We can instantly pick out all of the cars, pedestrians and street signs. We can also make very good guesses about the future behaviour of these objects, like knowing that a pedestrian is about to move into a crosswalk. While robots can detect the presence of pedestrians using lasers and cameras, deciding if what they are seeing is a pedestrian or just a mailbox on the side of the road is a big challenge. Predicting what that pedestrian will do in the future is even harder.

APC: How will cars incorporate autonomous robotic features over the next 10 years?

MM: They won't become autonomous overnight. Instead, they will become a little more autonomous every year though the introduction of high-end features. Anti-lock brakes and adaptive cruise control are two examples of features that take a little control away from the driver in exchange for extra safety or comfort. At some point, our cars may be completely autonomous, but only in certain environments like a special robot lane on the highway or in stop-and-go traffic. Maybe you can hop out of your car and have it park itself.

14 epinions
HAVE YOUR SAY

epinions@acpmagazines.com.au

Come on, have your say! We want to hear what you think. Add to these discussions or email your views (in fewer than 250 words) to epinions@acpmagazines.com.au. All correspondence becomes the property of *APC* and is subject to editing. Letters must include writer's full name, street address, suburb, state and phone number to be considered for print publication and to be in the running for Letter of the Month prizes. Address and phone details will not be published.

THIS ISSUE'S WINNER

Stewart wins a TP-Link Wireless N Router and Adapter bundle worth over $200.

Letter of the month

GRAPHIC GREED

I have an issue regarding the lack of premium motherboards with decent expansion options. I prefer the high-end motherboards as they have better PCBs, better capacitors, better VRMs etc. But over the last few years, these motherboards have been ditching expansion options for multiple video cards. All of a sudden 3x SLI , 4X CrossFire is the new norm, if you will.

I am not a fan of 3-way SLI CrossFire. I find one high-end card is more then enough. I don't see the need for three GFX cards. Now granted there are performance hogs out there that want 60fps etc, and I'm fine with that, but what I'm not fine with is the lack of the mobos with at least three PCI-E X1 slots for expansion. All the mobos have three SLI and two PCI E X1 slots, but usually one of them can't be used because of the size of the video card. It's just crazy.

Why can't they just make a 1 PCI-E x16, 3 PCI-E X1 and a legacy PCI slot? The answer is GFX cards make more money; the majority of the mobo manufacturers also make GFX cards, so not allowing the option of upgrading to more GFX limits their sales, and that's sad, from a consumer point of view.

Stewart Dodge
Brisbane, Qld

Linux users respond in force!

ANGRY LINUX USER

I'd like to respond to the letter by Allan Phillips in *APC* (Dec 2008). This letter made me very angry. I have been using Ubuntu as my OS for over a year now and I love it.

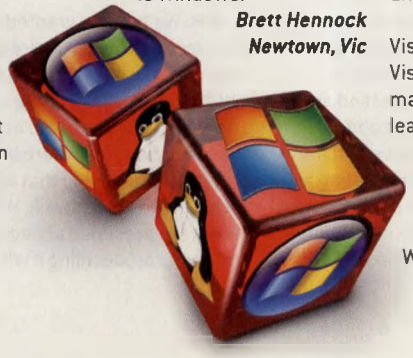
Firstly, you talk of your issues with Vista crashing because Ubuntu had installed the GRUB bootloader, reporting that the Ubuntu forums netted only failures to fix the issue. Curious how if you Google the words "vista ubuntu dual boot" the first result gives you a page hosted by this very magazine giving a step-by-step tutorial on how to dual-boot Vista and Ubuntu (Vista installed first). It suggests EasyBCD to reinstate the Vista bootloader. Many Vista users recommend this, did you try it?

Further, you gave us a link that is supposed to scare us away from Ubuntu, I want people to visit it: **http://tinyurl.com/5xc24d**.

You obviously read the article but none of the many intelligent responses further down the page. Please be aware of both sides of the argument. What also makes me angry about this is that you blame Ubuntu for your troubles; the problem only exists because Vista changed its boot loading method, making it hard to co-exist with other operating systems, like Ubuntu/Linux. That is Ubuntu's fault, how?

I propose that had you researched the procedure correctly (the *APC* web page I suggested for example), you would have avoided the issues. Ubuntu and other Linux distros are excellent alternatives to Windows.

Brett Hennock
Newtown, Vic

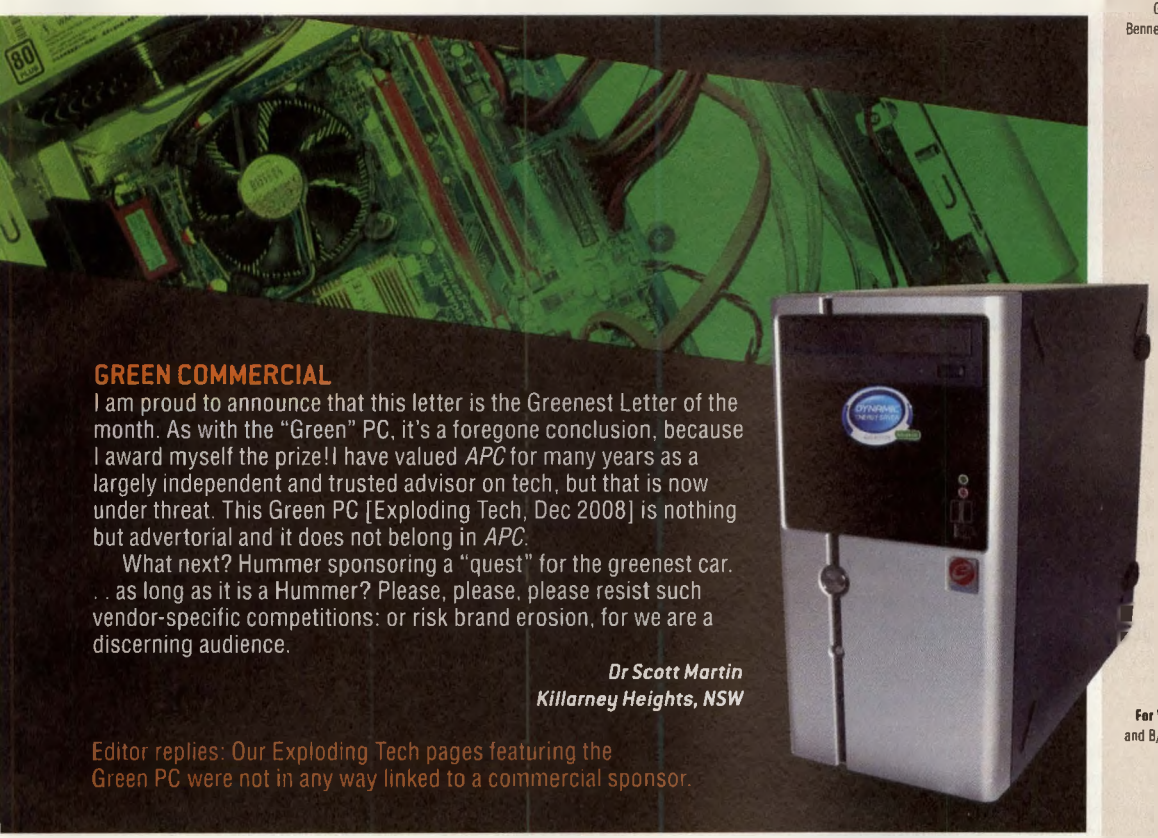


DISSING LINUX

I am confused as to why two letters that did nothing but highlight the lack of Windows experience of the writers were presented in a manner as to "dis" the Linux operating system. ("Linux on the Nose", Dec 2008).

Surely if you are seeking to set up a multi-boot system using the BIOS to select the drive to boot from, you would have the nous to ensure that only one hard drive (the target drive) is connected during the install? I multi-boot Win XP, Vista and Kubuntu in this fashion and have never had an issue.

Alan, try installing XP alongside Vista and see what happens to Vista's boot loader! You, and your mate W James perhaps should learn how to use the recovery console in Vista, particularly the "Fixboot" and "FixMBR" commands. Linux didn't let you down: it was your own Windows inexperience.



GREEN COMMERCIAL

I am proud to announce that this letter is the Greenest Letter of the month. As with the "Green" PC, it's a foregone conclusion, because I award myself the prize! I have valued *APC* for many years as a largely independent and trusted advisor on tech, but that is now under threat. This Green PC [Exploding Tech, Dec 2008] is nothing but advertorial and it does not belong in *APC*.

What next? Hummer sponsoring a "quest" for the greenest car. . . as long as it is a Hummer? Please, please, please resist such vendor-specific competitions: or risk brand erosion, for we are a discerning audience.

Dr Scott Martin
Killarney Heights, NSW

Editor replies: Our Exploding Tech pages featuring the Green PC were not in any way linked to a commercial sponsor.

APC, I am disappointed that you printed these two letters. Are there hidden agendas here? Microsoft pushing for a bit of propaganda perhaps? Yes that sounds paranoid, but on the face of it those two letters sat oddly in what is usually a class magazine. They didn't belong there.

I triple-boot XP, Vista and Kubuntu on my desktop. I also run Kubuntu on my Aspire One netbook. No problems, no issues. I also run XP on Kubuntu in VirtualBox as well (four OSs on one box. . . yeehaa!), a subject covered wonderfully in December's issue as well! Well done, there. That's what I expect from *APC*.

P. Henderson
Hillbank, SA

STOP BLAMING LINUX

There is one thing that I am finding very annoying when reading your mag. That is these clowns that stuff up their own machines and then blame Linux (Ubuntu), for it.

I have installed different versions of Linux over the years, some dual-boot with a Windows OS without any problems, bar some tweaking. If you set up the boot loader properly you should not have any problems. One thing that experience has taught me is that dual-booting with Windows "is not" a good idea. Anyone with experience will know that Windows does not play nice with other OSs.

Stop blaming Linux for your own inabilities and lack of knowledge. I have had a Linux machine running for a couple of years and it has never crashed once. You can't say that for Windows. It is more than likely that Vista stuffed itself up without any help from Ubuntu. If people want to use Linux, load it on a fresh machine. Don't dual-boot with Windows, and educate yourself before you do attempt it.

Tony Joyce
Macquarie Fields, NSW

TRY FEDORA INSTEAD

I agree completely with the readers who wrote in about their extremely bad experience with Ubuntu. This is simply laziness on the part of the distributors. Sure, it is really the fault of GRUB.

I suggest the use of a "civilized" distribution such as Fedora, which has since the Red Hat days allowed you to choose where you install the boot loader. Likewise, Mandriva and others. I use Acronis so I always install to either the /boot (if I bother to create one) or simply /partition.

I certainly don't want some ill-mannered program dictating to me what I will use to run my computer: sounds like the gripes against Microsoft. I will not install Ubuntu again unless they fix this: it isn't that great. Compared to Fedora and others it is drab and boring; any of the others are probably a better choice anyway.

Ross McLeod
Caloundra, Qld

apc

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enduser

FROM THE READERS OF APC

apcenduser@acpmagazines.com.au

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Malfunctioning sticker

Richard Gray-Spence does tech support for a large surveying company operating primarily out of Qld. One day he received a call from a user saying her LCD screen was malfunctioning. "I asked whether the monitor was turning on, and it was, and the user said she was receiving a picture but that there was large dot in the middle of her screen," Gray-Spence says. He went through the usual troubleshooting list of checking cables and resetting the auto function button but to no avail. Seeing as the user happened to work only down the street, he headed down to see what the problem was. "When I arrived at the office and sat down at their computer I couldn't believe my eyes. The user in question was showing me the dot that was on the screen, so the way I fixed it was to take the yellow sticker off of the screen. Someone had placed one of those little circle stickers on her screen as a joke and she couldn't tell that it was just a sticker." Gray-Spence says the user kicks herself over it to this day. We are not surprised: she would be right up there with the dumbest users ever mentioned in these pages.

IMPOSSIBLE SCREENSHOT

Reader John Witford sent us an unbelievable email exchange between himself and Research in Motion support (from Canada, for a BlackBerry Bold 9000):

Witford: Then the second time I ran it it locked up on the Permissions screen. It is still locked on that screen and I think I will have to take the battery out.

RIM: Can I have a screenshot of the problem screen? The attached tool (rename to .exe) can be installed to capture a screenshot.

Witford had to remind the RIM tech support person that the call was about a locked screen.

R&D MANAGER

Robert C Kuns from Hobart was serving as the in-house geek to a small company when the R&D manager announced that his computer was dead. When Kuns asked him what he'd changed, the R&D manager said he'd re-arranged his cubicle to look at the East car park instead of the North. Kuns recalls: "On checking, everything was plugged into the correct ports and all the power cables into the power board were correct, except one which wandered off behind the filing cabinet. After following it (and at least one extension cord) around multiple objects d'office, I found it led to the… power board. That's right, he'd plugged the power board into itself." Kuns hopes the guy's R&D was better than his computer expertise.

CLEANED TO DEATH

Bob Hagan was working in a computer repair shop when a man in his 60s walked in and placed a system box and a keyboard on the counter. When Bob asked him what was wrong with it, the man handed him a plastic bag. "I had no idea what was in the plastic bag; I thought it might be a computer part or something," says Bob. "I opened it and nearly threw up. The guy had decided to vacuum his PC and had emptied the contents of his vacuum cleaner into the bag. It was truly disgusting: a massive ball of dusty grey lint, grey hair and bits of insects." When I asked why he had given me this, he replied that he was annoyed that by cleaning so much gunk out of his PC, the machine no longer worked. I took the PC apart and was shocked at how much damage his vacuuming had caused. The mobo had damaged capacitors, the CPU fan had been torn off, and some of the internal wiring had been snapped off. He'd obviously just shoved a vacuum cleaner nozzle in there as if he were cleaning the bottom of a cupboard."

The worst thing, says Hagan, was the customer thought that by cleaning the computer, it would perform better.

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1 Source: Canalys research, total PND units sold worldwide April 07-June 08. 2 Selected models only. Traffic alert feature available in Sydney, Melbourne and Brisbane.

watchdog

KEEPING AN EYE ON VENDORS!

watchdog@acpmagazines.com.au

Has an IT vendor or telco stuffed you around? Let us know about it and we'll chase them for a solution on your behalf. Letters sent to **watchdog@acpmagazines.com.au** must include the writer's full name, street address, suburb, state and phone number to be considered for print publication (please also include details such as invoice numbers and people you've spoken to). Address and phone details will not be published. All correspondence becomes the property of *APC* and is subject to editing.

"Thank God for Gmail"

The signal just isn't getting through when one reader experiences a deluge of Optus (and other ISP) server-related bouncebacks. **Watchdog** investigates.

I seem to have an intractable problem with email bouncebacks to several (mostly) USA personal and business contacts. I initially thought that my (Mac) computer was the problem, but a tech-savvy friend pointed out that the IP address that does not have the permissions is mail08.syd.optusnet.com.au. I was able to check this by inserting an 'nslookup' line into my Terminal window, which returns: 'name = mail08.syd.optusnet.com.au'. I have a list of some of the email addresses that reject my emails and the associated Optus servers.

I have contacted Optus several times about this and they admit it's their problem and are working on a fix. But if I visit the Microsoft URL [specificed in the bounceback email] (**http://support.microsoft.com/kb/928123**) or the equivalent in the AT&T (and other ISPs mentioned in the bounceback headers), it tells me how to fix the problem.

Looks straightforward, but I have to own the IP address to do it, and these are Optus IP addresses.

I have spent a long time on the phone to Optus in the last couple of months trying to make progress with this. I received an email acknowledgement promising a fix in 24 hours. This morning, when I called yet again, there was a 20-minute delay in speaking to anyone, so I gave up and wrote to you. I'm sorry this is so lengthy but I expect you need the gory details. Can you help? Am I the only person with this problem?

David Malin
Bayview, NSW

Watchdog referred David's questions to Optus in order to see what the problems were with his bouncebacks. We received the following reply:

Dear Watchdog,

Optus has contacted Mr Malin and since resolved his issue.

There are a number of variables that may lead to the failure of a sent email, including the destination address, the mail servers hosting the destination address or the spam filters used by these mail servers or the individual recipient etc.

The "email bouncebacks" Mr Malin has referred to appear to be the result of spam filters affecting the destination email addresses.

When Optus receives multiple customer reports about email failure to the same Internet Service Provider's (ISP) mail server, an internal investigation is raised.

If it is found that the OptusNet domain name has been blocked by this mail server due to suspected spam, Optus will contact the ISP and request for the OptusNet domain name to be listed as safe.

Optus is very active in the global fight against spam and has been working closely with the Internet Industry Association (IIA) on a coordinated approach to this important issue.

The IIA has a Spam Code which Optus helped to develop, which aims at minimising the amount of spam email sent by, and received by, Australians.

As with most major ISPs, Optus has sophisticated anti-spam measures in place that may at times cause slight delays — these measures serve the purpose of ensuring that spam is discarded prior to our customers being impacted.

Optus Spokesperson

David could confirm for us that Optus had been in touch — but not that the bounceback issue had been solved: "Indeed, the Optus spokesman called me two or three weeks ago and assured me that they were aware of the problem and that it would be fixed. I did not test this assertion immediately but I have just done so, and it is definitely not fixed.

"Emails sent to recipients at bellsouth.net, pacbell.net, mchsi.com, sbcglobal and comcast.net all bounced back. The only thing in common seems to be that they pass through some AT&T and/or Comcast gateway.

"The returned mail headers offer 'Tools for administrators of mail systems whose messages have been blocked' (**http://worldnet.att.net/general-info/block_admin.html** and **http://help.comcast.net/content/faq/BL004**) which allows system admins to provide some details. Looks simple to me. This time, however, only one Optus server seems to be involved in all the recent bouncebacks: 211.29.132.186, which is mail05.syd.optusnet.com.au.

"Thank God for my Gmail account."

BOUNCING: NOT SO FUN
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- Video editing, authoring and conversion
- Photo editing and slideshow creation
- Media management
- Music and audio capture
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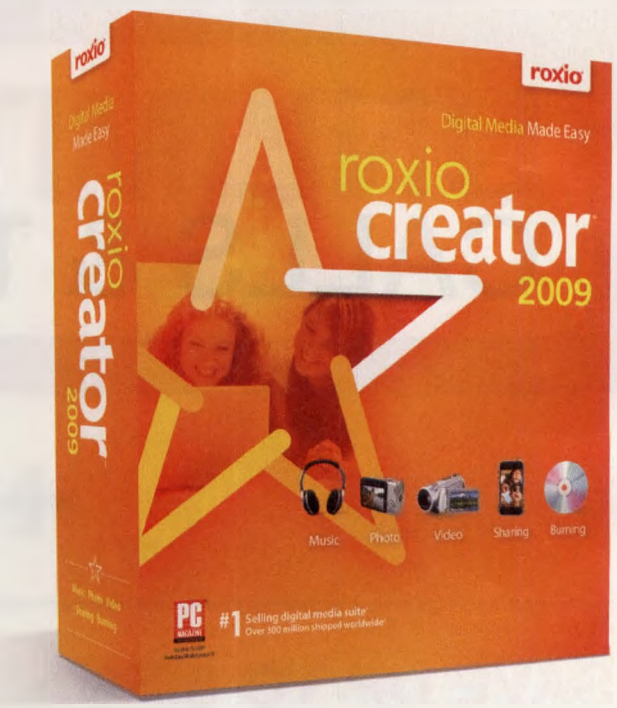

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Available from:

Harvey Norman, harris technology, Officeworks The Works, CITY SOFTWARE

and selected retailers.

No. 1 selling digital media suite*
Over 300 million shipped worldwide

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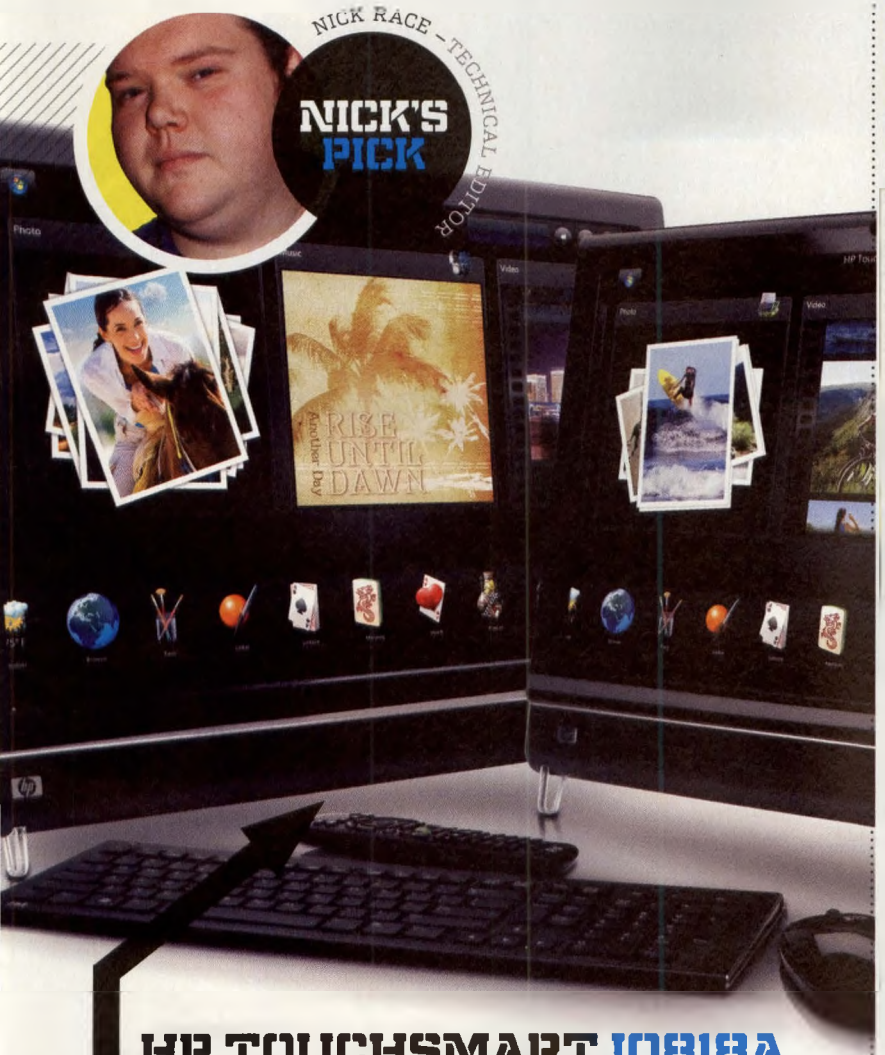
21 thelab

PRODUCT REVIEWS & COMPARISONS



HP TOUCHSMART IQ818A

HP's thinking outside the box with this one — trying to make a computer that's more than a computer. Can they do to the PC what the iPhone did to mobiles? Is it plausible to make a PC that's not for the bedroom or study?

PERFORMANCE ✪✪✪✪

HP's software for the touch interaction is excellent. With quick swipes across the screen you can navigate in style. Fingertip writing is surprisingly good too.

PRICE ✪✪✪

There's a lot of new tech going on here, and touchscreens have always been notoriously expensive (and delicate). But you can see where the cost has gone.

SETUP ✪✪✪✪

The design is perfect for what it aims to achieve. The screen is big, bright and wide, the keyboard slides away, and you can run it with a single cable. Neat.

LABS ROUND-UP

NEXT-GEN GPS NAVIGATORS

Throw that tattered directory away! We review seven of the latest portable nav devices that make it easier than ever to find your way.

43

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The design is worse than just starkly utilitarian — it's old-fashioned.
The small trackpad and undersized keys make the NB100 a less than impressive netbook.

5/10

Toshiba NB100

Say no to this netbook.

Toshiba
www.toshiba.com.au
$699

Charge-and-go USB ports; easy access panel for upgrading RAM. ✔

Battery life; bloatware; ugly; small keyboard and trackpad. ✖

SPECIAL FEATURES *i*

8.9in 1,024 x 600 LCD
1.6GHz Atom CPU
1GB of RAM
120GB hard drive
Wi-Fi

Given Toshiba's mobile computing heritage and expertise, we expected a lot more from its debut netbook. Alas, the NB100 suffers from being a hurried 'me too' exercise.

Why are we so down on the NB100? The short of it is that this could have been a brilliant netbook if only Toshiba had put some more effort into it. A lot more effort, truth to tell.

The blueprint is bog-standard 'netbook 101': an Atom N270 processor, 1GB of RAM, a 120GB hard drive (Toshiba's own mid-range 2.5in 5,400rpm model) loaded with Windows XP Home. Three USB ports, 802.11g Wi-Fi, Bluetooth, webcam, memory card reader, yadda yadda.

This should make it easier to craft an outstanding netbook because the common floorplan lets you focus on bringing your own strengths to the package and nail those aspects your competitors miss. This should have made Toshiba work harder to differentiate its very first netbook from the rest.

The design is worse than just starkly utilitarian — it's old-fashioned, with its chunky chassis, black plastic panelling and silver plastic trim. That's a huge disappointment compared to the stylish Toshiba notebooks we're seeing lately.

Things get no better when you lift that lid. The keyboard is the worst of any netbook in this 8.9in form factor, mainly because the keys themselves are so small that you'd swear they belong to a 7in netbook. We also felt the trackpad to be undersized.

The 1,024 x 600 screen uses one of Toshiba's 'TruBrite' panels with a glossy high-contrast finish. This makes for crisp and vibrant images when there's not too much light around but otherwise it's prone to glare.

Battery life is sub-par, considering that Toshiba has opted for a four-cell battery. With 802.11g Wi-Fi running, the screen brightness at 66% and the volume wound all the way up the NB100 managed only 148 minutes playing a handful of DivX videos.

All up, we found only a few truly noteworthy features on the NB100. Toshiba deserves a tip of the hat for sensibly locating some ports on the rear of the NB100 rather than the sides. The VGA port sits at the far right, to one side of the extended battery booty, allowing plenty of room for the VGA connector and shroud. Ethernet and AC sockets, which you could imagine often being used at the same time, are grouped together on the left.

It's also nice to see an easy access panel for those who want to upgrade the NB100's factory-fitted 1GB of RAM to the maximum 2GB which the Atom chipset can support.

We were also mystifed by the selection of third-party software loaded. Why does a netbook without an optical drive need Toshiba's DVD player software or its assortments of CD and DVD authoring software?

We can't escape the feeling that Toshiba simply took its standard Windows XP image for consumer notebooks and chucked in the NB100's hardware drivers — perhaps another sign of Toshiba's rush to get a netbook, any netbook, onto the market. And we remain totally baffled by the presence of Microsoft's SQL Server 2005 console in amongst all this!

Maybe there's something much better under development back at Toshiba HQ. We hope so, because the NB100 is not a netbook deserving of the Toshiba badge.

David Flynn

9/10

ASUS M50Vm

Forgoing portability for power.

ASUS
www.au.asus.com
$1,999

Great NVIDIA chipset; speedy CPU; plenty of memory.

Chunky, but that's expected; AI light feature leads to overbright display.

SPECIAL FEATURES
NVIDIA G9600M
128-bit memory bus
2.53GHz Core 2 Duo T9400
320GB hard drive
1.3MP webcam

APC MAGAZINE apc EDITOR'S CHOICE

Gamers will appreciate the M50Vm's NVIDIA G9600M chipset. This 65-nanometre powerhouse buzzes away with a 128-bit memory bus (fast by laptop standards) and a 500MHz core speed. Unfortunately we couldn't run 3DMark Vantage to give you a score, but we did run a handful of games including Crysis, and they all ran fine when set to medium detail.

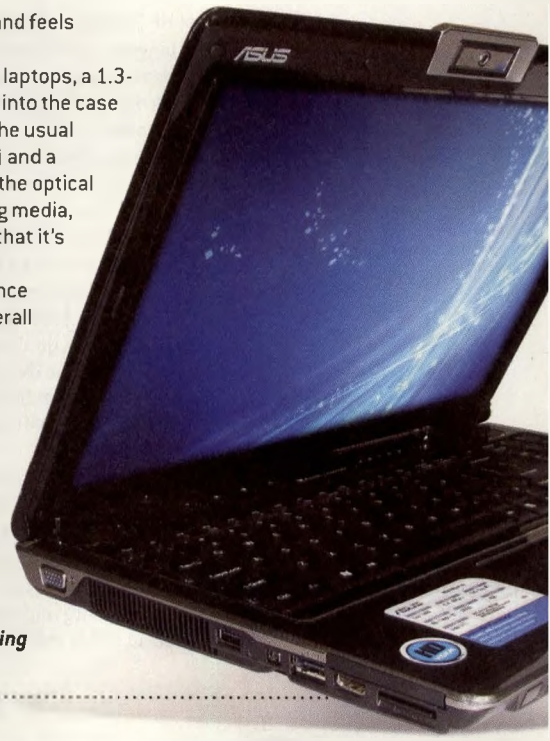
A hefty 2.53GHz Intel Core 2 Duo T9400 drives the NVIDIA graphics, giving a balanced platform for power users, while 4GB of memory is a stack of RAM. Sadly this isn't used in full due to the 32-bit OS. A whopping 320GB hard drive provides plenty of space while Gigabit Ethernet enables fast transfer of films from your video-editing PC.

The laptop's media functionality continues from the high-end processors and screen through to the touchpad, which doubles as a control panel for media playback. The keyboard has more travel than most laptops, and feels reassuringly sturdy.

As with most of today's laptops, a 1.3-megapixel webcam is built into the case above the screen. It's got the usual gamut of USB ports (three) and a single FireWire port. While the optical drive handles most burning media, we're a little disappointed that it's not Blu-ray compatible.

As expected, performance was superb, scoring an overall PCMark Vantage score of 4,044, rivalling many mid-range desktops. But it comes at a cost: battery life. Considering you probably won't be lugging this heavy laptop out of the house, that shouldn't really be too much of a problem.

Bennett Ring



6/10

Fujitsu L1010

Aimed squarely at young hipsters.

Fujitsu
www.fujitsu.com/au
$1,349

Reasonably specced hardware; solid build; hinges are tough.

Pricey for a budget laptop; fails its goal of fashion accessory.

SPECIAL FEATURES
14.1in screen
1.3MP camera
2.16GHz Intel Core 2 Duo
NVIDIA GeForce 9300M GS

Unfortunately, aiming at a market where brand is more important than functionality is fraught with danger. It doesn't matter how good the product is, because without million-dollar marketing campaigns, there's no competing with Apple when it comes to designer hardware. Which is a shame, because when it's not trying to be the new iPod, the L1010 is a decently specced laptop.

At 14.1in, the screen is a little small for this price range; we'd expect at least 15.4in. Thankfully the 1,280 x 800 resolution ensures it's nice and clear.

On the top edge of the screen is a 1.3-megapixel camera, so the Gen Y'rs can upload videos of themselves to MyTube.

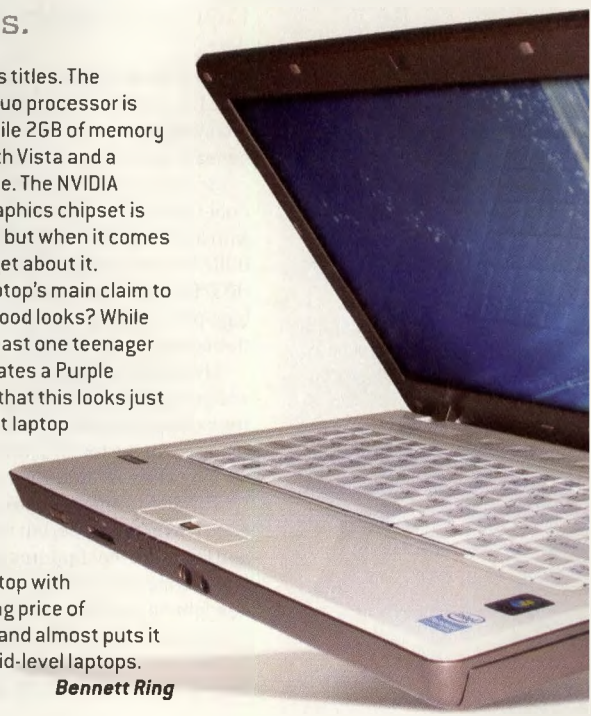
Due to the small size, the keyboard is one of those low-travel jobbies, but it doesn't have the fragile plastic feel of other budget laptops. The touchpad is accurate, but lacks a defined edge to separate it from the wrist rest.

Sadly, the L1010 is going to struggle to keep up with today's titles. The 2.16GHz Intel Core 2 Duo processor is decidedly low-end, while 2GB of memory isn't enough to run both Vista and a memory-hogging game. The NVIDIA GeForce 9300M GS graphics chipset is great for HD decoding, but when it comes to today's games, forget about it.

But what of this laptop's main claim to fame — its stunning good looks? While we're sure there's at least one teenager out there who appreciates a Purple laptop, the sad fact is that this looks just like every other budget laptop on the market. Just a little more gaudy.

There's one other slight problem with the L1010 — the price. For a budget laptop with these specs, the asking price of $1,349 is rather high, and almost puts it in the price range of mid-level laptops.

Bennett Ring



8/10

HP Pavilion dv7-1105tx

Big and busty, but not for the road.

HP
www.hp.com.au
$2,699

✔ Strong media focus; fair battery life considering the power consumption of this machine.

✖ Poor viewing angle on the screen; a higher resolution screen and a Blu-ray player would be welcome.

SPECIAL FEATURES
NVIDIA 9600M GT
802.11 a/b/g & draft N
4GB DDR2 memory

The HP Pavilion dv7-1105tx notebook is the biggest of HP's Pavilion range, and if it's power you want, you shouldn't need to look much beyond what this notebook has on offer.

Running a Centrino 2 platform, it includes Intel's 45nm Core 2 Duo T9400 2.53GHz CPU, with a solid 6MB L2 cache and a full 1,066MHz FSB. There's no bottleneck with the RAM either, as HP has included a respectable 4GB of DDR2 (800MHz) memory. If you're a gamer, however, you'll be pleased to know that that the dv7-1105tx deviates from the basic Intel GPU, instead opting for an NVIDIA 9600M GT with 512MB of dedicated RAM.

You'll have no trouble multi-tasking between applications like Adobe Photoshop, Firefox and Microsoft Office, for example. Encoding music and movies should be a breeze, too.

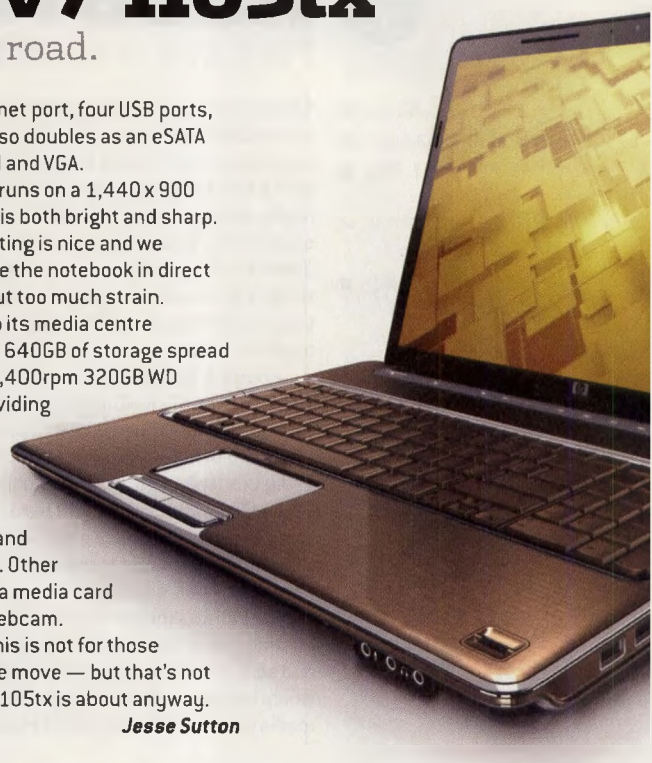
Connectivity reigns supreme with Wi-Fi 802.11 a/b/g and Draft N support, plus a Gigabit Ethernet port, four USB ports, one of which also doubles as an eSATA port, plus HDMI and VGA.

The screen runs on a 1,440 x 900 resolution and is both bright and sharp. The glossy coating is nice and we managed to use the notebook in direct sunlight without too much strain.

Ramping up its media centre potential is the 640GB of storage spread between two 5,400rpm 320GB WD Scorpions, providing plenty of playing room for movie collections, photo albums and music libraries. Other extras include a media card reader and a webcam.

At 3.46kg this is not for those regularly on the move — but that's not what the dv7-1105tx is about anyway.

Jesse Sutton



5/10

HP Pavilion tx2613

Conceptually good, but at what cost?

HP
www.hp.com.au
$2,299

✔ Fairly good Tablet interface for a non-digitised screen; easy conversion between Tablet and notebook.

✖ Poor performance at this price range; too heavy to be a highly effective Tablet; average sound for a media-focused notebook; poor screen quality.

SPECIAL FEATURES
Altech Lansing speakers
56K modem
Touchscreen

HP's notebook/Tablet hybrid, the tx2613, uses a fairly responsive touch technology that employs a gas layer beneath the top surface of the screen.

Under the hood is an AMD Turion X2 Dual-Core RM-72 CPU running at 2.1GHz with a 1MB L2 cache, 3GB of 800MHz DDR2 RAM and an ATI Mobility Radeon HD3200 graphics card. The CPU is not a high-performance option, which showed through in our benchmarks.

The 12.1in screen is quite cloudy, which may have something to do with the extra protective and sensor layers required for the touch screen. The viewing angle is fairly shocking too.

The Altec Lansing speakers do a good job for their size, but they're small and limited. Other features include a LightScribe DVD RW + DL drive, dual headphone jacks for sharing audio, a media card reader and a webcam.

Ports include three USB, an Express Card slot, S-Video and VGA, a 56K modem and a Gigabit Ethernet port. Adding to this is an 802.11 a/b/g and Draft N wireless adapter and Bluetooth.

The keyboard is a good size and the touchpad, vastly different from most, is very comfortable to use.

At 1.93kg it's about standard for a notebook, but for a Tablet it's a tad heavy, which limits its functionality. Also limiting as a Tablet is its battery performance. In our DVD rundown test we were able to get just an hour and 15 minutes worth of play time.

While we're glad that something like this exists on the market, it's only really worthwhile for people with a very specific need which, at this stage, we can't pinpoint.

Jesse Sutton

8/10

HP EliteBook 6930p

This notebook could survive the dryer.

HP
www.hp.com.au
$2,199

Rugged design that should stand up to punishment; full complement of expansion ports; joystick as well as trackpad.

Heavy, particularly with optional battery pack; default screen settings are too dull; insufficient keyboard travel.

SPECIAL FEATURES
2GB RAM
160GB hard disk
ATI 3450
T9400 Core 2 Duo

HP has positioned the EliteBook 6930p as the ultimate road warrior's notebook claiming outstanding battery life (of up to 24 hours), business ruggedness and all the processing power a business user would need. Based on the spec, it should perform well with Vista, having 2GB of RAM, 160GB hard disk and an ATI 3450 graphics chip with 256MB of dedicated graphics RAM and a reasonably powerful T9400 Core 2 Duo processor.

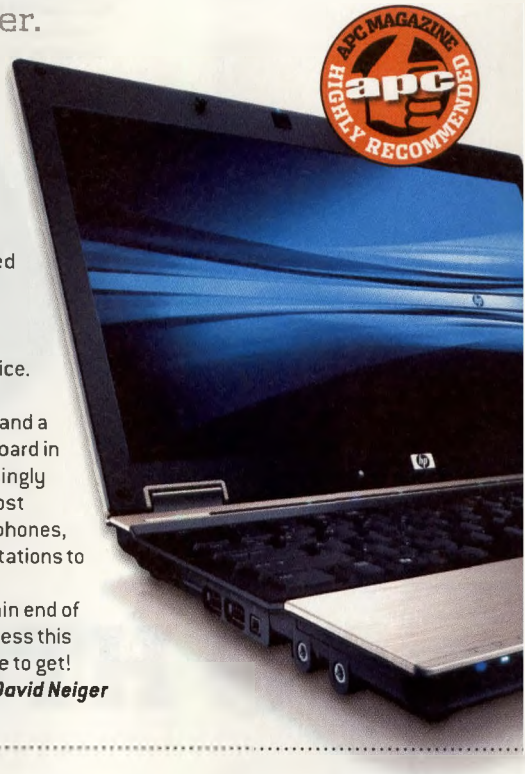
In a normally lit room we found it difficult to see, especially when on battery power. You can turn up the brightness but it shortens battery life considerably. Once you do turn up the brightness, the screen is sharp.

The 6930p is certainly well endowed when it comes to ports and connectivity. USB, FireWire (1394a), an ExpressCard 54 slot as well as sockets for microphone and headphones. The front of the unit has speakers and an SD/MMC card slot. There is a multi-format DVD burner with LightScribe and a slot for an optional SmartCard as well as an Ethernet port and a socket for the inbuilt fax modem. The back of the notebook has the power socket and VGA connector.

The keyboard is well spaced and comfortable to use. In the middle of the keyboard is a mini joystick, so if you don't like trackpads you have a choice. At the top of the screen is the webcam, a small microphone and a tiny LED lamp to see the keyboard in darkness. The audio is surprisingly good. Of course, you would most probably listen through headphones, but this bodes well for presentations to colleagues and so forth.

It is not priced at the bargain end of town, but if you want ruggedness this notebook could well be the one to get!

David Neiger



7/10

MSI GX620

And you thought overclocking was the domain of the desktop.

MSI
www.msicomputer.com.au
$1,900

Overclocking at the press of a button; looks like a gaming machine; NVIDIA graphics aren't as bad as laptops used to be.

Keyboard flex is worrying; still doesn't have the grunt for our favourite new games.

SPECIAL FEATURES
Full-size number pad
Aerodynamic touch sensor
Turbo power

Gaming laptops are now a dime a dozen. Thanks to the magic of miniaturisation, they weigh just a couple of kilos, yet have enough power to make today's games purr. Well, that's the theory.

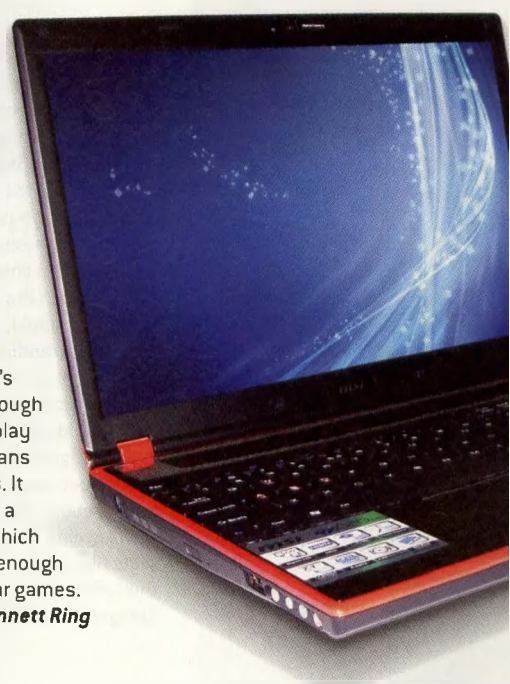
Flipping open the GX620's lid presents a fairly average keyboard, incorporating some not-so-average features. For starters, there's a full sized numpad, great for gamers who prefer this section of the keyboard to the WASD area. By far the nicest touch on the keyboard is the "aerodynamic touch sensor". It's a row of touch-sensitive buttons, allowing you to control your media, turn on wireless etc., but it looks slick, and even better is the Turbo button in the middle.

It's not quite the doubling in frequency that the older turbo buttons offered, this time offering an extra 15% or so of power. The Intel Core 2 Duo P8600 CPU runs at 2.4GHz with it turned off, rising to 2,780MHz with Turbo engaged. It only works when you've got mains power plugged in though, so no overclocking on the bus. Unfortunately, the keyboard has one major issue; flex. The entire keyboard moves inwards a disturbing amount.

Thankfully these concerns about build quality don't extend to the case, which has a rugged brushed aluminium construction, giving the base and screen a sturdy feel.

As a gaming machine, the quality of the screen is of the utmost importance. The GX620's 15.4in TFT won't be quite big enough for serious gamers. For casual play it's OK, and the matte finish means it'll handle high glare conditions. It packs an NVIDIA 9600M GT with a dedicated 512MB of memory, which is supposed to offer more than enough grunt for most of today's popular games.

Bennett Ring



The Touch Pro's five-row QWERTY keyboard is a dream to to use.

HTC has enhanced its OS to make it easier to use without a stylus.

8/10

HTC Touch Pro

Leave your laptop at home.

HTC
www.htc.com
$1,099

TouchFLO 3D interface; striking design; full QWERTY keyboard. ✔

Thick; heavy; annoying multi-connector port; performance needs fine-tuning. ✖

SPECIAL FEATURES
5-row QWERTY keyboard
Crisp 480 x 640 VGA res
microSD slot expansion

The Touch Pro doesn't deviate much from the Touch Diamond's striking good looks. It has the same mirrored front and diamond cut patterned back, but it's a lot thicker and heavier due to the keyboard, adding a considerable 6.7 millimetres to its waistline and weighing a portly 165g.

Still, the rest of its footprint is compact, so the Touch Pro doesn't give seem like an unwieldy phone, and overall it feels of a premium high-end smartphone. The 2.8in display is fairly standard, but the crisp 480 x 640 VGA resolution is anything but, making it the most high-res screen currently available on a smartphone.

The Touch Pro runs Windows Mobile 6.1 Professional, and as is HTC's modus operandi, the company has taken great pains to make the OS look, feel and run better than its natural state. Windows Mobile veterans won't even recognise the main Today screen as it's been completely skinned with HTC's beautifully-designed TouchFLO 3D front-end. An animated desktop-style flip clock takes centre-stage in the default view, and running a finger along the row of icons on the bottom presents a host of other features and functions that you can access without leaving the main screen.

The five-row keyboard is a delight to use, with raised tops on each key and just the right amount of tactile feedback, although a bit of spacing around each key wouldn't have gone astray we feel.

It's safe to say that the HTC Touch Pro is one of the most full-featured smartphones on the market. On the hardware side, it packs every flavour of wireless imaginable: quad-band GSM, 7.2Mbit/s HSDPA, 802.11b/g Wi-Fi, Bluetooth 2.0 + EDR and A-GPS, although the lack of navigation software is a let-down given the Touch Pro's hefty asking price. It's inherited the same 3.2-megapixel camera from the Touch Diamond for photo stills and video, only this time round HTC has added a flash for capturing photos in low lighting.

Much ado was made about the Touch Diamond's lack of memory expansion — this has been fixed in the Touch Pro by adding a microSD slot, accessible by popping the back cover off. What hasn't been rectified is the annoying HTC ExtUSB multi-connector — one of our biggest bugbears on HTC smartphones.

In addition to the standard Windows Mobile software for authoring Office docs, accessing push and pull email, chatting on Messenger and playing multimedia, HTC has loaded the Touch Pro with a few choice extras. Opera Browser 9.5 Mobile is the standout, providing 'almost-as-good-as-an-iPhone' web browsing, and the dedicated YouTube client is a lot slicker and easier to navigate than the online mobile version.

The Touch Pro features the same 528MHz Qualcomm MSM7201A processor that the Diamond used, but RAM has been bumped up to a healthy 288MB. HTC has also fine-tuned TouchFLO 3D to consume less resources, and the end result is a smartphone that's noticeably zippier than its predecessor.

The puny 900mAh battery of the Diamond has also been up-sized to 1340mAh on the Touch Pro, and you can expect around two days of moderate use before it needs a top-up.

Jenneth Orantia

APC MAGAZINE HIGHLY RECOMMENDED

8/10

Samsung Omnia

An excellent smartphone with built-in surprises.

Samsung
www.samsung.com.au
$849

Can play most video without conversion; 8GB flash drive. ✔

No integrated stylus holder; clumsy finger mouse. ✖

SPECIAL FEATURES *i*
Expandable memory
Replacable battery
TV Out functionality
Runs fastest processor

The Omnia is well-equipped when it comes to screen size, offering a decent 3.2in, with excellent viewing angles, brightness and visibility. A built-in motion sensor automatically adjusts the screen orientation.

The Omnia doesn't lack for anything when it comes to network connectivity and wireless, with 7.2Mbit/s HSDPA, 802.11b/g Wi-Fi, Bluetooth and A-GPS.

All of these functions are put to good use with a selection of applications, including Google Launcher and Maps, Podcasts, RSS Reader, ShoZu (for uploading pictures and videos), Messaging and Opera Mobile 9.5. The lack of physical keyboard means the Omnia isn't the best smartphone for lots of email, but the Messaging application isn't lacking.

Samsung hasn't taken the iPhone challenge lightly, and the multimedia functions on the Omnia are best in class. On the hardware side, it comes with a spacious 8GB of internal memory, which you can add up to 16GB more with a microSD card. TV Out functionality is included, and while our review unit didn't come with a cord in the box, Samsung assured us that all shipping units will.

While it uses a multi-connector for hooking up headphones, Samsung has bundled an adapter for using standard headphones.

As to software, the Omnia is loaded with ample media-centric applications. Our favourite is Touch Player, which operates as a front-end to Windows Media Player and adds extra features like large finger-friendly buttons, a full-screen view, and compatibility with a greater number of audio and video codecs like DivX, XviD, MPEG-4, AAC, MP3 and OGG.

Windows Mobile is notorious for being a sluggish OS, but you wouldn't know it using the Omnia. It runs the fastest mobile processor currently available (a 624MHz Marvell Xscale PDA312 chip) along with 128MB of RAM, and for the most part it's responsive. Battery life is excellent. Advertised talk and standby times over 3G are four hours and 400 hours respectively.

The iPhone lookalike market has gotten extremely crowded of late, but the Omnia is far from a me-too device. It's the only touchscreen smartphone we've seen with a five-megapixel camera, and it's also the only smartphone with DivX.

Other things that cause the Omnia to stand out are the expandable memory, replaceable battery with a relatively good run-time, well-designed software input options, and loads of great software pre-loaded.

Jenneth Orantia

BlackBerry
12:21PM
Thu, May 22
EDGE
(3) Messages
Mon 24
A bright and vibrant screen lets you easily read documents and web pages on the go.
RIM has released the first flip smartphone, it's still no iPhone killer though.

8/10

Pearl Flip

BlackBerry breaks with design tradition.

Optus
www.blackberry.com
Price Free on Optus $79 plan

Sharp and vibrant screen; excellent battery life; built-in Wi-Fi.

Sluggish performance; plain design; no 3G.

SPECIAL FEATURES
First 'flip' smartphone
Wave pattern keyboard
An upgraded interface

Nestled in between the recent BlackBerry Bold and the upcoming Storm is the BlackBerry Pearl Flip 8220, the first RIM smartphone ever to use a flip phone design.

It's a little plain on the outside, with a nondescript, black, fingerprint-prone gloss front and cheap-looking plastic rear, but things improve a little when you flip it open, thanks to the striking black and chrome colour scheme, unique wave-pattern keypad and vibrant 2.6in display.

Like most flip phones, the Flip features a smaller screen on the outer shell, and by default this shows an analogue clockface, date, battery indicator and mobile reception. Any new calls, emails and text messages are also displayed, and you can read the SMS or email without flipping open the phone. When you're playing music, it also displays the track info, and you can pause and skip through tracks.

First introduced on the original Pearl, the Flip uses a modified QWERTY keyboard called SureType for entering text. The layout is essentially identical to the full QWERTY found on the Bold and 8800, but each key houses two letters, and uses predictive text.

GPRS makes a comeback on the Flip, along with built-in 802.11b/g Wi-Fi for faster connections. On any other smartphone, the lack of 3G would be out of the question, but BlackBerrys can get away with it as all of the data passing through RIM's network is optimised for slower 2G connections. Loading the graphics and Javascript heavy **apcmag.com** web site, for instance, took just over a minute over Wi-Fi and only two minutes over GPRS. That said, streaming videos and downloading files is interminably slow.

The Pearl Flip runs the same BlackBerry OS 4.6 operating system that we first saw on the Bold, and the upgraded interface translates well to the smaller QVGA resolution. It's more or less the same icon-driven menu system as previous versions of the OS, but the graphics have been overhauled for a more modern look and feel. Key applications have also been updated: email now supports HTML and rich text formatting; the media application can now play DivX and XviD videos; and the web browser has been tweaked to render desktop-formatted web pages more efficiently (although iPhone's Safari browser is still better).

It's not only email that gets the benefit of rich text formatting — you can now view Word, Excel and PowerPoint file attachments in their native formatting as well thanks to the preloaded Documents To Go Standard Edition suite. Other bundled applications include Facebook, Windows Live Messenger, Yahoo! Search, Yahoo! Messenger and Google Talk.

Multimedia playback has improved in leaps and bounds in the BlackBerry models released in the last year, and the Pearl Flip continues the tradition with a powerful external speaker, 3.5mm earphone jack and centralised Media application for music, videos, ring tones, pictures and voice notes.

Speedy performance isn't one of the Pearl Flip's strong points, and there's a definite lag at times when bringing up the menu, moving between applications and entering text. The Pearl Flip has a small 900mAh lithium-ion battery, which is enough to keep it running for around four days of medium usage.

Jenneth Orantia

3/10

Lenovo ThinkCentre A62

Lenovo
www.lenovo.com/au
$949

Low power consumption. ✔

Big; overpriced; dull. ✖

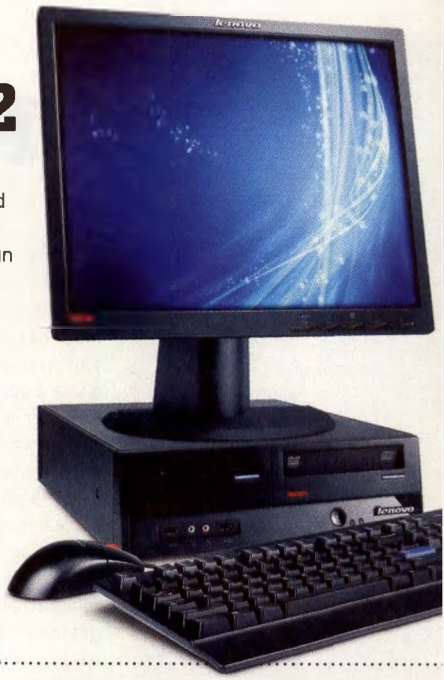
Business PCs can have all sorts of exciting and interesting quirks. But then there's the Lenovo ThinkCentre A62. It's a midi tower system which takes up a fair bit of desk space. The front has a DVD recorder and space for another one beneath. There's space for a floppy drive, two USB ports and audio jacks. The proprietary Lenovo motherboard is virtually bare. Expansion is possible via two PCI slots, a PCI-E slot and a PCI-E 16x slot. There are rubber grommets that hold the case fan in place, making this PC almost silent.

At the back are VGA and DVI ports along with six USB ports, three audio jacks and parallel and serial ports for legacy office equipment. Graphics are onboard ATI 3100-based, and the processor is a triple-core 2.1GHz Phenom X3 8450. This, with its solitary stick of 2GB RAM and 250GB hard disk is powerful enough for basic office tasks. It refused to run PCMark Vantage.

The keyboard and mouse are basic, wired affairs but thoughtfully use recycled materials. Indeed, much is made about the low power consumption and green credentials. Although why make such an unnecessarily big PC in the first place?

Acer, HP and Dell, just for starters, offer the same plus much more as well as great warranties and service too, for so much less.

Nick Ross



9/10

Thermalright Ultra Extreme Black

PC Maniacs
www.pcmaniacs.com.au
$85 (no fan), $110 (w/ Antec 120mm fan)

Looks fantastic; performs exceptionally well. ✔

Lacks fan; whole package is expensive. ✖

CPU cooling is one of the best investments you can make. The Thermalright Ultra Extreme, or TRUE as it's otherwise known has quickly become one of the most popular high-end air coolers on the market. Thermalright have expanded the line with a new Black version, and there is also word of an all-copper version due out soon.

Apart from the cooler, there are a number of brackets that support most of the latest processors. We also have two sets of fan clips that let you attach two 120mm fans, along with a tube of thermal paste to use when installing the cooler on your processor. There are some things worth noting; the TRUE doesn't come with a fan. PC Maniacs sent us a 120mm Antec fan ($25) for testing. Also missing is a new i7 bracket. There's good news, though: kits are available separately ($25).

Performance is fantastic, offering the lowest temperatures I've seen on air to date. At idle our four cores on the overclocked Q6600 came in at 26/28/25/21. Firing up World in Conflict and monitoring our temps brings the cores up to 39/44/44/39, which again proves it's a solid performer.

With the cooler and i7 bracket, the TRUE pricing does blow out to a hefty $135. That said, the combination really does offer better performance than entry-level water-cooling kits, whilst also being one of the best air-cooling solutions money can buy.

Shane Baxtor

8/10

HP TouchSmart IQ818a

HP's latest TouchSmart: impressive.

HP
www.hp.com.au
$3,799

Looks great; works brilliantly; perfect family PC. ✔

Too big for the kitchen; too small for the living room; not powerful enough for enthusiasts. ✖

SPECIAL FEATURES
25.5in LCD
Touchscreen display
TouchSmart software
2.1GHz Core 2 Duo
500GB hard disk

This HP is a PC built into an unusually-sized but nonetheless welcome 25.5in 1,920 x 1,200 LCD panel with a glossy black bezel with silver trim. The screen is glossy and displays very rich colours and a sharp desktop. The real talking point, however, is the touch-screen and special HP software that makes use of it.

Somehow HP has developed a coating that is highly resistant to fingerprints while not impacting image quality. Activating the TouchSmart software brings up a very well-designed series of touch-friendly applications. You've also got the full functionality of a Windows Media Center PC, including a TV tuner which supports analogue and HD signals. If you don't want to be touching the screen all the time, HP includes a wireless keyboard and mouse plus a nifty Media Center remote. It's powered by a 2.1GHz Core 2 Duo processor with 4GB RAM and a 500GB hard disk.

Networking is assisted by Gigabit LAN, Bluetooth and 802.11n Wi-Fi. Other connectivity includes five USB ports, mini FireWire, coaxial S/PDIF out, audio in and out jacks, S-Video and a media card reader. There's also an integrated webcam, ambient light sensor and a Blu-ray-reading DVD writer.

The specification is solid for a PC and it scored a respectable 3,762 in PCMark Vantage. Some gaming is possible but you'll need to drop the resolution and detail settings: it only managed 1,308 in 3DMark Vantage.

The functionality is perfect for a communal living space though it's too large for most kitchens and too small for living rooms. It's powerful enough for a straight family PC, however.

Nick Ross

7/10

Scorptec Scorpion King

With Core i7 out, here's one of the first PCs built around it.

Scorptec
www.scorptec.com.au
$7,999

Core i7 Extreme power; quad CrossFire power; 2 x 1TB hard disks; looks great. ✔

Needs Vista 64-bit; not cheap. ✖

SPECIAL FEATURES
S965 Extreme CPU
Two ATI 4870 X2 cards

It's off to a good start, with the excellent CoolerMaster Cosmos 1100 case looking great and providing easy access. There's enough space to build a powerful server and there's plenty of room to upgrade in the future (but you won't need to for a long while yet). The unit sported an Intel engineering sample X58 motherboard, which will change with the full retail version of this PC (so check which motherboard is used once it's on sale).

The X58, codenamed SmackOver, is a whole new architecture and uses an integrated memory controller that's similar to AMD's. It also uses the new Socket 1331, which support's Core i7's larger chip size and pin count.

The Scorpion King has a stonking 965 Extreme Edition CPU that comes pre-overclocked at 4GHz (stock is 3.2GHz). It will actually overclock whether you want it to or not, as Core i7 has a built-in Turbo mode which automatically shuts down unused cores while increasing the frequency of the remaining ones when needed. Core i7 chips are quad-core and each core uses hyperthreading. If your software can make use of all of these threads, as some encoding and graphics applications do, the system will fly. As such it scored a high PCMark Vantage score of 7,424.

For 3D, two ATI 4870 X2 cards are included, giving you quad CrossFire power. Our review unit had Vista Home Premium 32-bit installed. However, this can only access 4GB of RAM and, with the graphics cards sporting 1GB each, this system has 8GB in total. As such, it really needs Vista 64-bit, then you'll see a big increase in the 3DMark Vantage score of 9,264.

For $7,999, we'd prefer to see Blu-ray and better cooling — but early adoption of the fastest kit is never cheap.

Nick Ross

7/10

Bandluxe C100

Some software glitches, but will fulfil the needs of most.

BandRich
www.bandrich.com
$389

Flexible connectivity; easy installation. ✔

Software needs work. ✖

SPECIAL FEATURES *i*
- Auto HSDPA handover
- Plug and play
- ExpressCard/34
- Vista Compatable

When most folks subscribe to a mobile broadband service they sign on for a contract that includes a fixed amount of bandwidth per month and the requisite hardware. The problem is that some people switch computers during the contract term or they don't want a monthly service and would prefer a short-term option such as a pre-paid service that's topped up as needed. The Bandluxe C100 is an HSDPA modem that delivers flexible connectivity options that would satisfy most users.

The Bandluxe C100 is really three modems in one. Connectivity can be either by an ExpressCard 34 slot, USB or PC Card. The actual C100 is an ExpressCard but it comes with USB and PC Card convertors. When connected by USB, Bandluxe supplies a small clip that can be easily attached to your notebook's display so that the C100 can be attached to your computer rather than left dangling.

The 3G networks of all Australian carriers are covered with support for connections of up to 7.2Mbit/s over HSDPA 2100, 1900 and 850. Operating system support includes 32-bit and 64-bit Vista and XP as well as OS X and Linux. Installation was a snap. We tested the C100 on an HP EliteBook via an ExpressCard connection. When the card is first inserted it appears as a removable drive in Explorer. From there we were able to install the connection software and get connected in just a few minutes.

The C100 can also connect by USB using an adaptor. We used this to test connectivity with a MacBook Air. Again, the device appeared as a removable drive from which we could install the connection software.

The Bandluxe C100: three modems in one?

The software worked quite well although we did hit some glitches, particularly when we were in poor coverage areas and suffered dropouts. For example, the Mac software popped up annoying error messages that suggested that the hardware had been unplugged when, in reality, all that happened was that the connection broke off. Similarly, with the Windows software, the software told us there was "No Service" but the timer was still recording that we were connected even though the link was dead.

As the C100 wasn't locked to any specific network, we were able to test it with SIM cards from Three, Optus and Telstra. We found that connection speeds were comparable to those we recorded using each carrier's own hardware. In other words, using an unlocked modem didn't seem to cause any performance degradation we could measure. We tested by making sure we were in a strong coverage area using the carrier's maps and then testing the connection three times at **www.speedtest.net** with both the carrier's own hardware and the C100.

Now that carriers, such as Telstra, are starting to offer pre-paid SIMs that are data-capable, we can see a new, albeit small, market for unlocked 3G modems being established. Also, if you've got more than one notebook, perhaps a desktop replacement and an Eee PC or other netbook, then having a modem that supports different connectivity options might be useful.

Anthony Caruana

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PH: 3387 1500 - ADDRESS: 3353 PACIFIC HWY, SPRINGWOOD, QLD, 4127

The ShareSpace offers variable RAID storage and can act as an iTunes server to boot.
Overloaded with data? The ShareSpace comes to the rescue...
WD

7/10

WD ShareSpace

Ample storage for the whole family.

Western Digital
www.westerndigital.com.au
$849

Easy setup; easy-to-use; iTunes server. ✔

Lack of multimedia sharing options; limited RAID options. ✖

SPECIAL FEATURES *i*
- WD Discovery tool
- iTunes server capacity
- USB port
- Quiet operation

With the massive growth in MP3 players, photos and home video has come a need to be able to store and retrieve huge masses of data. With the typical home holding close to 1.5TB of data, it's little wonder that there's a burgeoning market for storage appliances. Western Digital has been a player in the hard drive game for over 25 years, so we were keen to see what they could deliver when putting together a storage appliance.

Our ShareSpace test unit shipped with a pair of Western Digital 1TB drives configured as a JBOD array. This maximised the storage capacity but limited reliability. If one of the two drives fail then all the data is lost. When we looked within the ShareSpace's configuration options, we found clear descriptions with diagrams that described what each of the configuration options meant. This makes the ShareSpace one of the most user-friendly RAID arrays we've tested so far.

RAID support was limited to JBOD, RAID 0, RAID 1 and RAID 5 with a total maximum capacity of 4TB possible. Of course, a RAID 5 setup would limit that to about 3TB, with one drive providing data redundancy.

While the ShareSpace could be expanded by adding another couple of drives, there's no support for hot-swapping, as the unit needs to be powered off in order to open the case to remove or install disks. This may be a limitation for some, but given many people will simply set and forget the ShareSpace it's not a major issue.

If finding and using networked drives is a black art for you, then you'll like the included WD Discovery tool. As well as making it easy to access the configuration tools, it provides a step-by-step wizard that maps shared resources. Creating new shares on the NAS was simple and they were accessible over CIFS, FTP and NFS. Connection to our test router was via a Gigabit Ethernet interface.

As well as simple file sharing, complete with user accounts for managing access, the ShareSpace can be used as an iTunes server. While that falls short of full UPnP sharing, it's better than nothing. As far as performance went, the ShareSpace was certainly good enough. We were able to transfer large files quickly. We tested the unit with video playback and detected a little choppiness, although this wasn't constant.

The front face of the unit has a USB port for connecting external storage devices such as hard drives and memory sticks. However, we simply couldn't get this to work. We tried a couple of devices but had no joy in getting the ShareSpace to recognise the drives. In theory, we could then, with a single push of a button, get the content of the storage device automatically backed up to the NAS. Our suspicion is the shape of the USB port made it difficult to get a reliable connection, as the port was quite deeply recessed into the case.

We suspect that most people who buy a NAS like the ShareSpace plan to have it sitting on a desk. The ShareSpace, while not silent, is quite quiet. We doubt that it'd be heard over the general white noise of an office, although we found that it needed to be a couple of metres away.

So, does the WD ShareSpace pass the "recommended to your mates" test? There's a lot to like about this particular device. It's easy to set up, works reliably and is quiet enough to sit on your desk. A few more media sharing and RAID options wouldn't go astray but, all in all, very considerable.

Anthony Caruana

9/10

HP w2448hc 24in Monitor

A stand-out display that ticks all the boxes.

HP
www.hp.com.au
$999

Brilliant display; input and adjustment options; solid build. ✔

No DVI cable. ✖

SPECIAL FEATURES
3ms response time
1,980 x 1,200 resolution
Integrated microphone
Integrated webcam

The first thing that stood out was build quality. The w2448hc weighs in at close to 10kg once it's unpacked. However, much of that comes from the heavy base and strong pivots and hinges that keep the screen steady. It has inputs in abundance. There's HDMI, DVI-D with HDCP and VGA connectors. The display ships with VGA and HDMI cables but there's no DVI lead in the box.

Once connected to our test systems, we were very impressed by image quality. Everything on the screen was vivid with plenty of "pop". Running our MonitorTest benchmark, we found that colour separation was excellent with no blurring at the interfaces between different colour blocks. Tight line patterns were clearly displayed and text, six points in size, comfortably readable.

Integrated into the display are three USB 2.0 ports, stereo speakers, microphone and a webcam. All worked nicely with the camera, speakers and microphone being very handy for Skype users. The speakers are adequate for business sound but if you're planning to watch DVDs or Blu-ray movies then they're not quite good enough. A single USB connection provides access to the camera and USB ports but you'll need to connect a 3.5mm audio cable to your PC's audio output for the speaker.

The 3ms response time, 1,980 x 1,200 resolution and 24in panel with great colour makes it a perfect companion for most computers. The availability of a HDMI input and the DVI-D with HDCP make it a good candidate as a display for a home media centre in a small room.

All that's missing is a remote control for changing between different inputs and a DVI to HDMI convertor.

Anthony Caruana

Plain sailing: HP's new 24in display passed our tests with flying colours.

8/10

Edimax nMAX Modem

A decent showing from the new kids on the block.

Edimax
www.edimax.com.au
$175

Great wireless distance; good setup wizard; good ADSL throughput. ✔

Simple configuration options; not as flexible as some. ✖

SPECIAL FEATURES
802.11b/g/n support
One-touch configuration
MIMO, WEP, WPA, WPS

It's not often that a wholly new brand appears in the pages of tech mags, especially with a comprehensive collection of products. In this case it's Edimax, a Taiwan-based networking company that has been selling product nearly everywhere else in the world since the '80s, but until now hasn't hit the sunny shores of Australia.

For our first look, we obtained Edimax's 802.11n ADSL2+ modem/router AR-7265WNA to run through its paces. The unit's specs are certainly up to par, offering an ADSL2+ modem, 802.11b/g/n support with MIMO and three external antennas, WEP, WPA and WPS one-touch configuration, plus the regular firewall, virtual server rules, DMZ and support for different network protocols.

Out of the box the Edimax has a slim, pleasing design, though the antennas were prone to slipping around. Edimax is pushing its "EZmax" setup wizards for device configuration, which we found comprehensive and easy to use. We did have a slight issue during the setup, where a screen for entering Wi-Fi information kept repeating, though after restarting this bug disappeared.

Performance of the Edimax AR-7265WNA was good. Roughly on par with our incumbent Labs ADSL2+ modem, the Billion 7404, with similar sync speeds and download speeds off Internode's FTP. Wireless 802.11n was where we were quite surprised. The Edimax's result in this case was very, very good. The unit outdistanced the 2.4GHz Linksys WRT610N by a good margin, with a reasonably strong signal across the length of our offices.

All in all, there's much to like about the Edimax AR-7265WNA ADSL2+ wireless modem router: it showed solid performance during our testing and a good (very easy) installation wizard. Now, does it have the lasting power?

Nick Race

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Hancock is available now on Blu-ray and is reviewed on page 117 of this issue.
This NEC makes a number of compromises, but the price will be right for some.
NEC

NEC NLT-42FHDL1

Fine for CRT upgraders, lacklustre for the rest.

NEC
www.nec.com.au
$1,899

Affordable price; easy-to-use. ✔

Fades to black too quickly; noisy pictures; image lacking detail. ✖

SPECIAL FEATURES *i*
1,920 x 1,080 HD res
2,000:1 contrast ratio
Three HDMI ports

NEC has launched a few plasmas lately, both 42in and 50in, but we wanted to look at the super-cheap Full HD 42in LCD model, the NLT-42FHDL1. At only $1,899 it's one of the cheapest full HD sets in its class.

Being a budget model our quality expectations weren't particularly high. However, we've seen good performance from LCD rivals for a similar price, so we weren't going to let it get away with too much either.

The glossy black bezel and stand looks classy enough, and in certain light you'd be hard pressed to see the speaker grille at the bottom of the screen. The remote is clearly laid out and exceptionally simple to use. It also ties in well with the intuitive on-screen menus. The integrated digital HD tuner finds all of the channels and it's easy to set up a favourite list and flick through it.

Naturally, on a TV at this price, there's not the most extensive range of picture adjustments. Contrast and brightness are the main options, and there are a few preset modes too: Dynamic, Mild and Standard. However, these ultimately affect brightness and little else. The two 10W speakers aren't bad, but they're not totally clear: things might be distinct when people are talking but lower frequencies and music sounds a bit muddy. Audio presets change between Standard, Music, Movie and Sports modes, while you can adjust Treble, Bass and Balance manually. There's also a setting called Spatial, which aims to imitate a surround sound system. To a degree it works, but it also makes audio sound like it's being broadcast via a 1960's robot.

The low 2,000:1 contrast ratio combines with the LCD technology to make all blacks appear very black indeed. Unfortunately, there are too many of them. Detail in slightly dark areas is all displayed as black: people wearing dark suits on the news look like black blobs. In dark interior shots, the whole screen almost appears black.

Another problem is image noise. In most areas of static, uniform colour, noise and pixel jitter are rife. It's not what you want from HD. Using the industry-standard HQC benchmark we found that it dealt with jaggies on moving objects very well. However, it failed the Video Resolution and Film Resolution loss tests, meaning that moving objects lost detail when signals were converted from progressive to interlaced. It benefits from high-quality input but still, with a high-end Sony Blu-ray player at native 24fps playback, noise was evident.

Other concerns were flesh tones, which saw caucasian faces rendered either pallid, bright red or both. Also, many onscreen objects had either soft edges or halos surrounding them. We found that the same criticisms could be levelled at both SD and HD playback. The noise problem meant that it was sometimes hard to tell if we were actually watching an HD broadcast or not.

A tuner that supports analogue and HD is integrated. Other inputs include three HDMI ports, two component and two sets of composite video and RCA audio ports (they're on the back).

Home theatre buffs will baulk at the image quality, but those who simply want a big TV to replace their ten-year-old CRT will probably think it's made of magic created by a wizard. $1,900 is cheap for 42in Full HD but still not an inconsiderable sum. While it will prove unbearably attractive to those who can find it for nearer $1,500, we'd still recommend saving up a bit more money. Panasonic's 42in Viera Plasma costs just over $2,000 (less if you're lucky), and the superior image quality is worth paying the extra for.

Nick Ross

8/10

Olympus Mju 1060

A top-of-the-range compact.

Olympus
www.olympus.com.au
$499

Styling; zoom; face detection; shadow adjustment.

Wide angle not quite wide enough.

SPECIAL FEATURES
3.0in HyperCrystal LCD
7x optical zoom
Advanced Face Detection
10 megapixels
Enhanced panorama function

APC MAGAZINE HIGHLY RECOMMENDED

I don't know what a 'Mju' is, some mythical beast maybe, or Japanese for 'camera', but I do know this is a damn fine compact!

For starters, this a serious 10.1-megapixel camera — more than many of its contemporaries — and supports a 7x optical zoom, which is 37-260mm if you still calculate in 35mm language. I'd like it to go a tad wider, but this allows shots up to 3,648 x 2,736, easily printable at poster size.

That new(ish) face recognition feature is built in of course and coupled with a special 'Shadow Adjustment Technology' and it actually works. Another first for me is that I can say up until now I have scoffed pretty much at face and teeth recognition as being gimmicky, and any half-decent snapper should be able to compensate themselves rather than be lazy and let a few computer chips make a billion or so calculations, but this is so good it is boggling.

Another party trick is the inbuilt ability to take panorama shots with a range of up to 130 degrees.

As is custom these days, there is no viewfinder; instead pictures are framed with the 3in LCD which Olympus tell us is HyperCrystal – whatever that is. It's very good though and allows what others call 'Live View' letting you see exactly what a photo will look like with various effects and adjustments added to it.

For high speed sports, the 1060 can shoot at nine frames per second and for different light types, there is a bundle of ISO settings available from 64 all the way up to 6,400.

I see many compact digital cameras in my travels, and the Mju 1060 is one of the very few I would consider buying for my specific needs.

David Hague

7/10

Samsung L110

A good point-and-shoot for first-time users.

Samsung
www.samsung.com.au
$299

Easy to use; value for money.

Documentation; power options; non-standard cable.

SPECIAL FEATURES
8.2 megapixels
3x optical zoom
Dual Image Stabilisation
Advanced Face Detection
Movie Mode

When I unpacked the latest Samsung L110, my shoulders sagged when I realised that not only was the power design of this unit a bit whacky, but it also used a non-standard power cable and 'USB' port. So if you run out of power for and have forgotten your charger, tough luck.

The L110 doesn't come with a memory card either; it's listed in the manual as an 'option'. Okay, so it does have 10MB of internal memory, but for an 8.2-megapixel camera, that's oh, four shots. Even in the lowest resolution, it's only 12! At today's prices, I am surprised there is any manufacturer that doesn't include at least a 256MB card as standard.

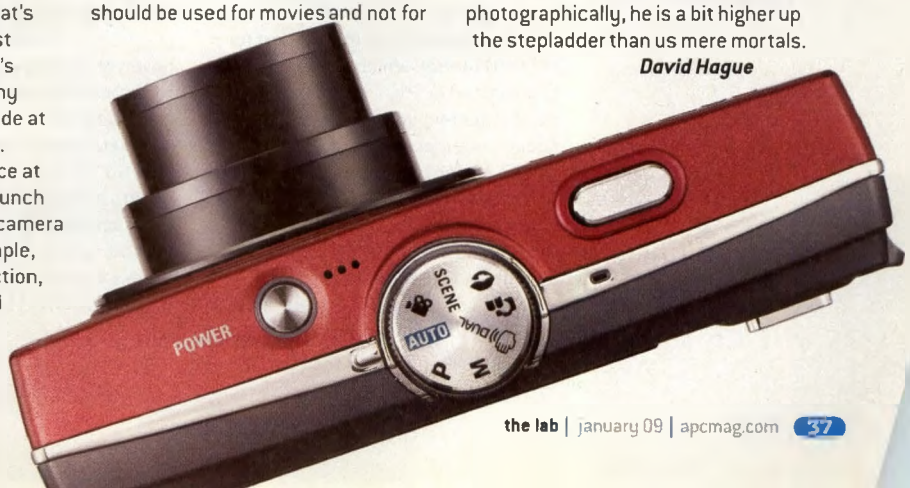
Still, the L110 is a decent price at $299. And it does come with a bunch of internal goodies making this camera great value for money. For example, the L110 comes with face detection, multi, spot and centre-weighted metering and ISO from as low as 80 up to 1,600. Similarly, the flash mode is extensive, allowing red-eye reduction, slow sync and fill, and a decent range of 4.7 metres.

You can adjust the sharpness of an image with five presets, and saturation and contrast can be compensated for. And of course there are presets for scenes as well, ten all up including one for 'children' (quick movement).

The L110 also takes MPEG-based movies, but just like a video camera should be used for movies and not for stills, so vice versa applies (except in extraordinary circumstances).

Corners have been cut to get the price down no doubt, but the final proof of a camera is in the resultant images. Here, I have no great complaint. This is a camera for someone who wants access to a camera at a decent price and not to shoot for photo competitions. Having said that, I have seen Ken Duncan take magnificent shots with a $300 camera. And photographically, he is a bit higher up the stepladder than us mere mortals.

David Hague



7/10

Sony RDR-HXD-990 PVR

Very little not to like.

Sony
www.sony.com.au
$599

1080p upscaling; multi-format, multi-region DVD playback; 710 hours recording; easy-to-use.

No HD tuner; no support for HD media or camcorders; slow start from power up.

SPECIAL FEATURES
250GB hard disk
DVD upscaling
Multi-disc playback

The Sony RDR-HXD990 is Sony's top-of-the-range DVD recorder with hard disk, DVD upscaling and multi-disc playback. It features both an analogue and SD digital tuner so you can enjoy the quality and additional channels of digital TV whilst still being able to watch analogue broadcasts.

The unit is stylish, with a bevelled silver front that allows easy access to basic playback and recording controls. A flap underneath the unit allows you to plug in a USB memory key, a PictBridge socket for digital still cameras and FireWire port for SD video cameras. The rear of the unit has the usual range of connectors allowing you to use the RDR-HDX990 with high-definition and older TVs. Inside the unit is a 250GB hard disk that allows up to 710 hours of recording in super-extended play mode or 105 hours of DVD-quality recordings. Recordings can be easily transferred to removable media using high-speed dubbing mode (copy 60 minutes of DVD-quality recordings in just five minutes).

The digital tuner is compatible with the electronic program guide broadcast by the television networks and the timer allows you to schedule up to 32 recordings 30 days in advance.

The upscaling works well and does a very good job of smoothing out DVD artefacts and reducing mosquito noise when playing back DVDs. All DVD audio standards are supported including Dolby surround and DTS. The remote control fits nicely in the hand and is large enough to be able to comfortably access the buttons without being too chunky. If you have a Sony TV, the RDR-HXD990 can be controlled from the TV remote over the HDMI connection.

The unit plays just about every type of DVD disc including overseas DVDs, DivX and DVD-RAM with the Pictlink making it easy to display photos on your TV. Our only criticism is we would have liked a HD digital tuner, but at the price you can't really complain.

David Neiger

8/10

DViCO TViX HD M6500-A

Finally, a media device that can play the weird ones.

Lako Pacific
www.lakopacific.com.au
$599

Good codec support; excellent HD performance; audio and video quality.

Network implementation could be better.

SPECIAL FEATURES
Multi-codec support
AVCHD support
Wi-Fi compatible

Anyone who amasses a collection of video and audio from the internet knows the nightmares involved in getting some of them to play. But here, with support for .mkv, .avi, .wmv, .mpg, .iso .vob, .ifo, .mp4, .asf, .tp, .trp, .ts, .m2ts, .mov(H.264) files filled with the following codecs MPEG-1/2/4, AVI, XviD, WMV9(MP@HL), H.264(BP@L3, MP@4.0 and HP@4.0), AVC(HD), VC-1(MP@HL, AP@L3), you've got most bases covered.

Very interesting is the support for AVC(HD) format, which allows you to download AVCHD files off your HD camcorder for playback right away. Audio has support for the usual formats, plus FLAC and Ogg, but no DRM.

It's got a clean and consistent interface and a good remote control. The unit supports HDMI 1.3, composite, S-Video and component and has a SATA hard disk drive for storage and recording. There's an Ethernet port, plus support for an optional HDTV Tuner add-on module ($125) that slots neatly in the back. Wi-Fi is supported using a USB adaptor, of which the D-Link DWL-G122 and the Linksys WUSB54GC are compatible.

Over a network, the TVIX can use SMB for regular Windows (or SAMBA) shares, or NFS via an included media sharing app. Network sharing is a pretty manual process, however. There's no support for user authentication on shares either.

Overall, we're impressed with the TVIX HD 6500-A. Its video and audio quality is excellent even via the network interface with HD content, the remote is good, format support is excellent and there's everything in the box (apart from a hard disk drive) to get you going.

Nick Race

Throw whatever you like at this DViCO unit: it can most probably play it.

Beyond the burn

The newest Nero and Roxio collections have evolved and are now pitching themselves as do-it-all media suites.

Burning your own CDs was a novelty ten years ago. But with memory stick capacities commonly starting at 1GB, the days of the CD and DVD are looking numbered. Blu-ray is trying to lumber its way into the market, but considering that a 500GB external hard drive costs next to nothing while 25GB Blu-ray disks still cost quite a bit, the price/performance ratio has yet to become convincing. It's also relevant that optical formats are just plain flaky. The chances of being able to play a ten-year-old CD-R without errors are pretty poor, while a ten-year-old external back-up drive that's only used occasionally will still be going strong. The long-term stability of the newer optical formats hasn't been proven yet, and the format you're using might not turn out to be the market stalwart.

With this shift away from the shiny plastic-coaster formats, the makers of burning software have needed a new direction. Both Nero and Roxio have responded by moving the emphasis towards media management, combining video and image viewers with basic editors for both media types. Nero has chosen a more technical approach by including various test utilities for drive-speed checking while Roxio has opted for packaging its suite of applications in a newly-styled interface.

HITTING THE WRONG TARGET

To some extent, the industry is a victim of its own success. It's now much harder to manage music and video than it used to be. CDs and DVDs stay on shelves and have very standardised features, but downloadable media have created an explosion of competing formats. For most people, even when they buy media in the traditional way, there are no standardised filing and back-up options. Although iTunes and other virtual music and video formats are becoming as important as CDs are, and YouTube is now a more likely output target than labelled and printed DVDs, there are no fixed ways to manage them. The result is that these media suites are solving the wrong problem. If you already have a CD burner then you're not likely to need a new one, but these media applications still assume that CDs and DVDs are the cutting edge. Another issue is bloat. Roxio's offering is more convincing because it tries hard to offer solutions rather than features. Nero's attempt is a harder sell because it tries to be a jack of all trades. But neither entirely succeeds at integrated hard disk-based media management.

Future media suites could make themselves more useful by making media libraries easier to manage, back up and restore. In the meantime, either of these products will burn CDs and DVDs for you, if that's what you want.

Richard Wentk

Roxio Creator 2009

8/10

Roxio
www.roxio.com.au
$169

Well-organised feature set. ✔

Pricey. ✖

Roxio's master utility looks good and works well. The features are collected into tasks, so most users should have no trouble navigating around what's quite a complex suite. There's a disk burner, label creator, DVD and photo viewer, a DVD copier (although it can't copy DVDs with DRM) and editors for both video and sound. These are easier to use and work better than those included with Nero 9, and the BackOnTrack back-up system is also included. We wouldn't burn very valuable data to CDs or DVDs, but BackOnTrack also targets hard disks. If you need a disk burner with backup, Creator 2009 offers you most of what you need.

Nero 9

4/10

Nero
www.nero.com
US$79.99

Lots of features and tools. ✔

Bloaty; buggy; doesn't match standalone apps. ✖

Nero has been accused of bloat and user-unfriendliness in the past, and that's also true of this release. There are a host of utilities and tools, but the package is still blighted by some big problems. Nero 9 aggressively resets all of your file preferences to point to its own applications, and these are usually inferior to the mainstream apps that you're likely to already have. The Nero media player is very buggy (there was obvious image corruption when we tried to play ASF files) and it's no match for a standard application like WinDVD. Nero 9 certainly does a lot, but it doesn't do any of it particularly well, and there's no reason to buy this suite when there are better options available elsewhere.

The age of Video

What does video software look like now that YouTube is YouBiquitous?

Until recently, video was — quite frankly — rather dull. Today, however, YouTube, LiveLeak and the other online video-sharing sites have exploded that trend. While the production processes are often minimal, the content is quirky, edgy, self-indulgent or just plain strange.

Video has become child's play; kids are just as likely to be uploading videos to YouTube as their parents are. Manufacturers haven't quite caught up with this change yet, but the 'upload to YouTube' option in most of these packages suggests that they're starting to get it — although inevitably, some more than others...

COREL VIDEOSTUDIO X2 PRO ULTIMATE

A giant shovelware package full of options and extras makes this Ultimate edition of VideoStudio X2 look appealing. It's one of the most professionally presented options and includes Steinberg Wavelab LE for audio editing, Win DVD 9 Plus Blu-ray for video playback of commercial and home-made DVDs and DVD Copy 6 Plus for DVD copying and format conversion.

The editor itself is an attractive step-by-step affair that guides you painlessly through the process of trimming and splicing video, adding extras such as transitions, titles and effects and then rendering to your choice of output. There's also full support for AVCHD in both native and proxy modes. Proxy mode uses smaller files to make HD editing possible on smaller systems; without it, you would need a minimum of a 2.66GHz quad-core CPU and some very fast hard drives if you wanted to edit HD video without stutter.

There's also a storyboard editor for quick and easy clip assembly and a good selection of effects, including animated paint-on, chroma key and 'film-look'. The disk-authoring tool is fully featured and can write both conventional DVDs and Blu-ray with a preset collection of menus. YouTube and iPod/PSP video options are also included as standard output formats.

If you're a newcomer, you may find that you like VideoStudio X2's editing format. However, if you're used to a more open system, you may find it constraining. You're just as likely to switch back and forth between modes as you are to move in steps through a predefined editing sequence. So the step-by-step approach on offer here isn't necessarily a winner, especially once you get past the basics and want to attempt something more creative.

The other problem with VideoStudio X2 is that the many different elements in the package aren't integrated properly. Wavelab LE is a fine audio editor, but it has a completely different look and feel from the main package, as does Win DVD 9. Finding the right balance between these features is tricky, and it's fair to say that although you get a lot of software for your cash, this bundle probably works best as a collection of different applications and not as a streamlined video editor.

Looked at this way, this package offers enough to win a Highly Recommended award. Even though it's not outstandingly cheap, you not only get a powerful video editor but also one of the most popular media players around, a good basic sound editor and a DVD copier. We would recommend it for casual users who are looking for a good all-round media package.

Verdict: 8/10
Online: www.corel.com.au
Price: $249.95

PINNACLE STUDIO 12 ULTIMATE

Pinnacle has a somewhat chequered history in terms of video-editing software.

It produces editors with innovative features that are occasionally used in professional situations, but the company has always been hampered by its quirky interface designs.

Pinnacle is now part of the mighty Avid conglomeration of professional media products that stretches from high-end industry-standard movie editing at the top end to desktop video at the other.

YouTube

Even though it's a budget product, Studio 12 carries some of that professional gloss into its presentation, and this package probably has more features than any other. There's even a green felt cloth included in the box that you can use as a backdrop for your own green-screen effects.

The extras include an updated version of a software package that used to be called Hollywood FX, which provides canned animations that you can use to create animated graphics and titles. The editor works in both storyboard and timeline edit modes, and you can also add some spice to your productions with Boris Graffiti titling and graphics, Magic Bullet film filters — the same package that professionals editors use to create film-like stylised colour and contrast effects from camcorder footage — and also VitaScene, which adds less stylised and more obvious artificial lighting and colour effects, including glows. Unfortunately, there's been no attempt to integrate Boris Graffiti into the main package — it runs as a separate application with its own timeline, which makes it difficult to use inside a project without some painful switching back and forth. Not that you would necessarily want to use it anyway — while it adds plenty of effects, none of them are essential and many aren't that interesting.

Studio 12's clearest strength is that it packs in a good volume of eye candy. You can add themes and looks to place your footage in various settings, which makes it ideal for home-made family videos and also useful for corporate work. Its biggest failing is its incomprehensible system of icons. These are supposed to switch between options, but they seem to have been designed by someone whose grasp of industrial design was less than complete — it's usually impossible to work out what they do without clicking on them.

Once you've mastered the features, Pinnacle offers a fairly mainstream editing experience. It's not outstandingly responsive, but it's not unusually poor, although some stability issues mean that we can't recommend it wholeheartedly. You can certainly put together some sophisticated-looking videos, but if you're looking for speedy editing as opposed to eye candy, it might not be your first choice. Overall, it's a good choice for family-oriented video makers who want to share their creations online and on disc.

Verdict: 6/10
Online: www.pinnaclesys.com
Price: US$129.99

SONY VEGAS MOVIE STUDIO PLATINUM PRO PACK

Vegas is one of the more popular and accessible video editors.

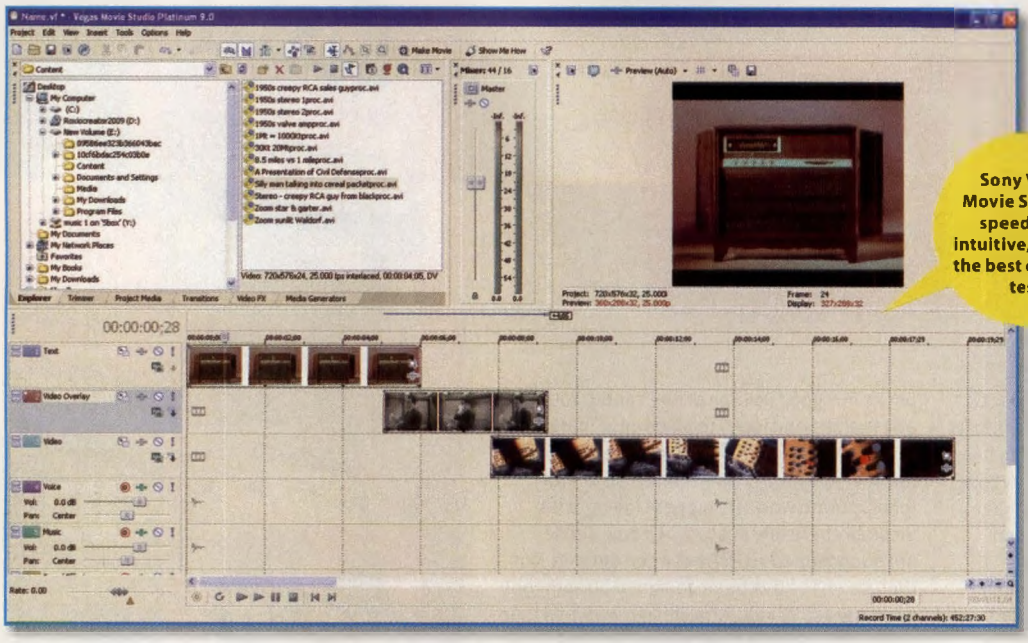
FILMING WITH YOUR PHONE

CAN YOU EDIT VIDEOS CAPTURED ON YOUR MOBILE?

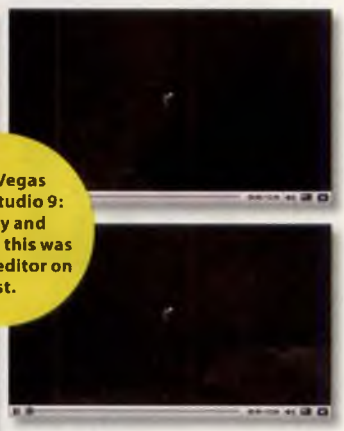
The mobile phone video revolution has happened so quickly — five years doesn't seem to be a long time in software — that some developers are struggling to keep, or catch, up. This isn't a good thing, because mobile video is set to become the new standard for taking video on the move in the near future.

There are many more users with mobiles than camcorders, and it's likely to drive more sales of editing software than the comparatively specialised and high-end needs of the traditional camcorder market. Quality remains a problem, but while phones won't be producing HD video any time soon, this isn't a show-stopping issue. The ability to take low-res video spontaneously when you're out and about is a much better alternative to having to keep a camcorder and tripod on your person at all times, just in case you see something that you fancy taking a video of. The convenience factor should mean that many more cut-down editors designed for mobile users will appear over the next few years, and they should feature much better support for the 3GP video format than today's products can offer. In this roundup, none of the editors support 3GP directly. However, most will load and save to MP4 — and until specific mobile video-editing software hits the shelves, that's the next best thing.

Mobile phones: the device of convenience that anyone can shoot with.



Sony Vegas Movie Studio 9: speedy and intuitive, this was the best editor on test.



The Pro Pack version includes AVCHD support, a version of the SoundForge audio editor and the CineScore music generator. There's also a budget version of DVD Architect, which is Sony's own DVD-authoring tool.

DVD Architect is one of the less successful DVD authoring products; the interface is clumsy and transcoding for DVD output often produces poor results. If you're looking for a DVD-authoring tool, we wouldn't recommend Vegas.

Vegas is most successful as a hands-on video editor. There's no storyboard option — all editing happens on the timeline — but the drag-and-drop system of trimming and fading means that you can splice together footage incredibly quickly. To create a cross fade, just drag one clip and drop it so that it overlaps another. You also get envelope control over opacity and sound volume, so you can drop keyframes directly onto the timeline to set how both video and audio fade in and out.

The preview window can be resized to show half- or quarter-sized resolutions, which is a neat way to speed up your edits; if the preview isn't running at full speed, reduce the resolution until it is.

The list of effects includes all the usual colour keying options as well as Photoshop-style blurs, sharpens and distortions. Some film-look presets are included, but creative effects are limited to a TV simulator and a newsprint dot generator. They're good, but it's not really a generous selection. Keyframing is also slightly clumsy because the keyframes are linked to clips instead of timeline positions. The keyframe editor is also more awkward than the rest of the package.

We'd recommend Vegas Movie Studio 9 to anyone who's looking for speedy hands-on editing. The biggest difference between this budget version and the more fully featured professional version of Vegas is the absence of some of the wackier blending modes between video tracks — and you won't miss most of them unless you're a VJ and need instant psychedelia. Otherwise, at least 90 per cent of the functionality of the bigger package is included here.

Neither product is packed with eye candy and frills, so it's not ideal if you want to add montage and frame effects, but it's the quickest tool in this round-up for basic assembly of video clips. Its working environment is intuitive and no-nonsense, and the inclusion of sound editing and music scoring software is a handy extra.

The relatively clean and lean approach means Vegas is ideal for your YouTube mini-projects, and in that environment it handles all the basics, including titles shown as growing text, time stretch and shrink, and other basic effects. Ideally we'd like to see some more sophisticated titling and effects. Otherwise, Vegas Movie Studio 9 is the best all-round editor in our group test for basic video and audio assembly.

Verdict: 9/10
Online: www.newmagic.com.au
Price: $219

Richard Wentk

NEXT-GEN GPS NAVIGATORS

Throw that tattered directory away! **Jenneth Orantia** reviews seven of the latest portable nav devices that make it easier than ever to find your way.

Remember when portable navigation devices were a luxury item that only the deep-pocketed could enjoy? No longer. Prices have plunged to the point that entry-level and last year's models can be had for as low as a couple of hundred dollars, and many features that were exclusively for top-end devices like large widescreen displays, spoken street names and preloaded safety alerts are now considered standard.

A TMC receiver is now the main differentiator between the haves and the have-nots, providing live traffic information to the navigation device so it can plan routes around any accidents or trouble spots on the way to your destination. TMC is provided by SUNA Traffic in Australia, and it's currently only available in certain areas of Melbourne, Sydney and Brisbane. Most flagship devices from each vendor have a TMC receiver built-in (otherwise it's typically available as an optional accessory), but even then you may have to pay extra to access the live traffic feature. Lane assistance is the other big trend; most nav devices now provide a visual and/or verbal indication of the correct lanes to be in on main roads and motorways, some offering 3D representations.

UNDER REVIEW

Garmin nuvi 265w

Mio Moov 370

Navigon 2110 Max

Navman S300T

TomTom Go 730

TomTom Go 930

Uniden TRAX 436

What do I look for?

In a GPS device. . .

Dazed and confused by all the sat-navs on display? Unlike a mobile phone, MP3 player, digital camera, or most other consumer electronics for that matter, they all tend to look alike, but there are a few key features to look out for when shopping for one in the store.

MAP VARIETIES

With a few exceptions, GPS devices will generally only come with maps of Australia. Some models do include international maps if you are planning on going abroad anytime soon.

USER INTERFACE

All of the sat-nav's features are accessed through the touchscreen, so check that you're comfortable with the menu system and interface.

MOUNT

Check that the navigation device affixes securely to the mount; ideally the suction cap has a lock on it so it sticks firmly to the windshield.

SCREEN

Wider is better, as you can see more of the map in one go — most navigation devices now have 4.3in displays.

SPEAKER

Usually located on the rear of the device, test it at maximum volume to ensure you can hear it above traffic noise and music.

Garmin nuvi 265w

The delightful UI and affordable price tag isn't enough to camouflage the flaws.

Most GPS vendors are moving away from features like multimedia playback and world clocks in favour of enhancing the actual navigation experience, but the Garmin nuvi 265 hasn't really moved with the times. As such, it lacks modern amenities like lane assistance, tunnel tracking and 3D landmarks in favour of a less-useful JPEG picture viewer, world travel clock, calculator and currency converter.

These shortcomings would be forgivable if the navigation was up to scratch, but we felt it lagged behind what the other vendors had to offer. Natural language isn't one of its strengths, and it misguided us enough times to leave a bad taste in our mouth — including advising us to make a U-turn at a busy intersection.

But the Garmin nuvi 265w isn't completely devoid of luxuries. Text to speech technology makes an appearance for spoken street names (although its mispronunciation of the word 'recalculating' was disconcerting, and the voices are a bit robotic), and it comes with Bluetooth hands-free for use with a mobile.

And then there's its gorgeous user interface, which is probably the nuvi 265w's single-most distinctive attribute. It has the same 4.3in 480 x 272-pixel touchscreen as all the other devices in this roundup, and it's put to best use with the nuvi's colourful and attractive menu system and maps display — it looks more like a racing car game than a portable sat-nav.

Still, the main maps screen is a little too simple, and we would've liked to see the name of the street we were currently driving on (it only shows the street you're going to) and the number of minutes till we arrived at our destination.

Also, we could've done without the full-screen dialogs for GPS signal loss and speed camera alerts — an audible alert would've been sufficient.

Garmin
@ www.garmin.com

✔ Gorgeous screen; Bluetooth hands-free; easy-to-use.
✖ No lane assistance; no tunnel tracking.

Mio Moov 370

Mio's flagship GPS is dressed to impress, but it misses the boat in too many areas.

When it comes to next-gen GPS features, the Moov 370 is at the top of its game. It comes with a built-in traffic message channel (TMC) receiver, Bluetooth hands-free and 3D landmarks, and also offers an extensive Points of Interest database that's supplemented by online access (via mobile phone) to over a million business listings through TrueLocal.

In practice, though, we found the Moov 370 to be an especially frustrating device to use. For some reason, it puts an emphasis on school zones, and alerts you to any that are in the vicinity — even if they're not located on your actual route. Driving on the M2 from Seven Hills to Sydney's CBD, we were warned about 14 school zones, none of which were on the motorway. Speed limit warnings were also sketchy, telling us we were exceeding the speed limit of 60km/h when it was actually between 80-100km/h.

Driving through long tunnels like the Eastern Distributor and Sydney Harbour was another perplexing experience, as the Moov 370 would stop tracking as soon as it lost the GPS signal (typically a few metres into the tunnel), leaving us with no guidance as to the correct lane or exit to be using. This is a shortcoming common to entry-level devices, but we expected better in Mio's flagship GPS.

A few other interface quirks left us unimpressed. Whenever the Moov 370 lost its GPS signal or created a route with one or more toll roads (a step that would sometimes succeed a GPS signal loss), it would obnoxiously display a full-screen dialog that required you to hit the OK button to get back to the mapping screen. An over-abundance of colours, lines and textures on the main mapping screen made it look cluttered and distracting, and the font used for the street and suburb names was too fine to read easily at a glance.

Mio
@ www.mio.com/au

✔ Online access to TrueLocal listings; built-in TMC.
✖ Annoying dialog boxes; no tunnel tracking.

Navigon 2110 Max

Good looks and some premium functions, but very talkative.

As the newest entrant to the GPS playing field, the Navigon 2110 Max is off to a good start with a bargain basement pricetag of $379 and flagship frills like an integrated TMC antenna and spoken street names.

The German-based Navigon launched in Australia with two navigation devices last year: the entry-level 2110 Max and the upper-range 2150 Max. Aside from a basic picture viewer, the 2110 Max sticks to pure navigation — even Bluetooth hands-free has been left off the menu, presumably to keep costs down.

Eye candy has also been kept to a minimum, especially in the user interface, which has a decidedly Windows 3.1 feel to it. No-nonsense text descriptions make up the majority of the menu system, and the main settings are all haphazardly lumped into a 'Basic Settings' section that makes it difficult to find particular options quickly or logically.

Navigation is a mixed bag. On the one hand, it offers predictive positioning in tunnels — a feature that eludes almost half of the navigation devices in this roundup — and we like that it swiftly recalculates your route when you go off-course without making a big song and dance about it.

On the other hand, it also feels compelled to tell you about every safety alert in its database with an audible 'Beware traffic alert', including bus lane cameras, school zones and red light cameras, and there's no way to selectively turn them off in the settings — we would've been happy with just speed camera alerts.

The 2110 Max offers some advanced navigation features that are more gimmicky than useful. Reality View Pro offers a 3D view of major turn-offs — similar to the feature on the TomToms and the Navman — but we never actually saw it appear in practice, despite travelling along a few major motorways.

Navigon
@ www.navigonaus.com
✔ Budget price tag; tracking in tunnels; fast rerouting.
✖ Lacklustre user interface; settings hard to navigate.

Navman S300T

Looks good, plays your stereo and saves you petrol?

Whoever said there's no truth in advertising obviously hadn't seen the latest ad for the Navman S-Series Platinum range, which states "If you want school safety warnings, you want a Navman."

The ad doesn't actually say anything about the relevance of the school safety warnings it displays, and therein lies the rub. The S300T uses the same software and maps as the Mio Moov 370, and hence has the same problem of over-zealously displaying school zones that aren't on the road you're driving on. It's not a problem we've seen on the other devices, so we're assuming it's an error in the underlying safety alert database.

The S300T also inherits the Mio 370's other flaws, like full-screen dialog boxes that appear on-screen whenever it loses a GPS signal and when the calculated route involves one or more toll roads, and no tracking when you're driving inside a tunnel (which is a problem if you don't know which exit to take).

Thankfully it's not all gloom and doom. The S300T is the most stylish of the navigation devices we reviewed, with an attractive brushed metal casing and slim 13.5mm thickness. It doesn't lack features, either, with an FM transmitter, built-in TMC receiver, multimedia playback (including videos and FM radio), online points of interest using TrueLocal via a mobile phone's data connection and Bluetooth hands-free.

Like the TomTom GO 730 and 930, it also shows extended lane guidance as you approach major turn-offs and exits, briefly displaying the turning point in full 3D so you know which lane to be in before reverting back to the standard mapping view.

Other cool features include 3D landmarks, NavPix downloads (for navigating via geo-tagged photos), and a fuel efficiency mode that optimises routes to avoid stop-start driving.

Navman
@ www.navman.com.au
✔ Stylish design; FM transmitter; built-in TMC receiver.
✖ Dodgy school safety warnings; full-screen dialogs.

TomTom Go 730

Does the job and is great value for money, but beware the flying GPS unit.

Even if you're the sort that insists on getting top-of-the-range everything, the GO 730 is well worth a look over the pricier 930, particularly if you don't travel overseas on a regular basis. The GO 730 is functionally identical to the flagship TomTom except it comes with Australian maps only, has a quarter less internal storage at 1GB, and doesn't come with a Bluetooth remote control, all for a considerably more wallet-friendly $549 pricetag.

Navigation on the GO 730 is excellent, and we rarely encountered any signal drop-outs or routing errors. The number of options in the menu system can be a little overwhelming, though, and we found the graphics, text and maps display to be a little low-res for the screen size.

The good thing about the GO 730 is that it's easy to get to the basic features like navigating to an address or point of interest, leaving you free to discover all of the intermediate and advanced features — of which there are many — once you get more comfortable. If you've got a Bluetooth-capable mobile phone, for instance, you can use the GO 730 as a hands-free kit, and also use the phone's data connection to check the weather in different areas and download changes that other community members have made to their maps (such as road closures and name changes) using TomTom's MapShare technology.

Like the GO 930, it also comes with an FM transmitter for outputting audio to your car speakers, but it's not strictly necessary as the external speaker on the GO 730 is plenty loud at full volume. The windshield mount was one of the easiest ones to affix, but it was also the most flimsy — halfway through the journey, it unceremoniously fell off the windshield and managed to call one of our contacts via the Bluetooth hands-free connection.

TomTom	✔ Good value for money; solid navigation functionality.
www.tomtom.com	✖ Windshield mount is flimsy; too many menu options.

TomTom Go 930

Now you can really travel almost anywhere in the world with this one.

With most top-tier portable navigation devices straddling the $500 mark, we were surprised to find TomTom's premier sat-nav, the GO 930, striding in at a cocky $849. Of course, it helps if you're the number one vendor in the game, but the GO 930 doesn't rely just on its brand reputation to justify the markup.

The GO 930 is quite similar to the GO 730, with the same dimensions and hardware design and near-identical features. The difference is that the 930 comes preloaded with maps for 45 countries, plus you also get a Bluetooth remote control and 4GB of internal flash memory (the 730 only comes with maps of Australia and 1GB of storage).

Despite the hefty pricetag, the base-level 930 that we reviewed doesn't include a traffic receiver — you'll have to plump an extra hundred dollars for the GO 930 Traffic, bringing it uncomfortably close to a thousand dollars all up.

It's shaped like a classic TomTom, with the domed top and curved back, and it has the same menu system and mapping interface as previous models.

As far as features go, the GO 930 crams all the latest luxuries in without sacrificing useability or performance. An FM transmitter is on-board for playing the GO 930's voice guidance over the car speakers, and just so you don't miss out on music playback from the stereo (as it's otherwise occupied with FM transmission), it also comes with a music player and iPod connectivity.

A few other features make the GO 930 unique in the market. IQ routes calculate your route based on real average speed measured on the road, advanced lane guidance shows the correct lanes to be in as well as a 3D views of major exits and turn-offs, and TomTom services like MapShare and Weather (via Bluetooth connection via mobile phone) extend the GO 930's functionality even further.

TomTom	✔ Maps for 45 countries; Bluetooth remote.
www.tomtom.com	✖ Graphics look low-res for the screen; expensive.

Uniden TRAX 436

Nervous Nellies will love all the hand-holding that the TRAX 436 offers.

Best known for its cordless telephones, Uniden has come up with a compelling package in its latest batch of sat-navs which is just as good — and in some cases better — than its more established GPS rivals.

The 436 is the flagship model in the TRAX range, and as such comes with all the top-tier trimmings like an internal TMC receiver, 3D landmarks and Bluetooth hands-free. It's preloaded with the latest 2009 WhereIS maps on the supplied SD card, and also comes with bonus New Zealand maps. The base price doesn't include a TMC subscription, which costs an extra $149.95.

Almost everything about the TRAX 436 is well-thought-out and beautifully executed, from the straightforward user-interface that doesn't overwhelm with options to the gorgeous mapping screen with its strong use of colours, bold text and informative sidepanels.

We particularly liked its display of the next two upcoming turns, so we always knew which lane to turn into, as well as the ever-present lane indicators for main roads and freeways.

Other handy features include simulated tracking in tunnels, a verbal warning when you go over the speed limit, and automatic day and night modes — the latter of which also turns on in tunnels.

City dwellers may want to give the TRAX 436 a miss, though. Despite being the only device in this roundup with a flip-up antenna, it would regularly lose its GPS signal while driving through the Sydney CBD, at one stage dropping out three times over a 100m stretch.

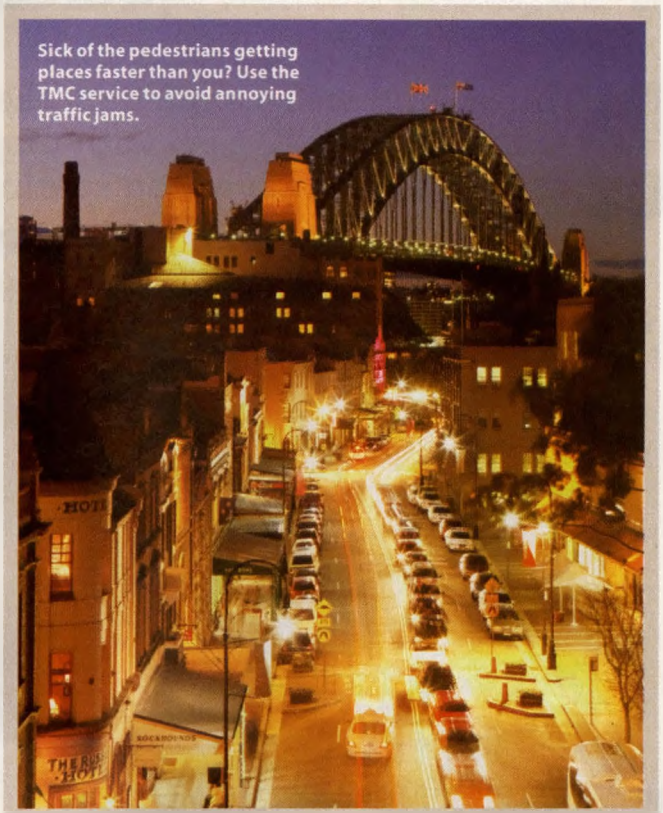
The spoken street name feature is handy, but it had some of the most dubious pronunciations ("Macquarie" as "McCarey", for instance), and it would also sometimes refer to streets and freeways as 'S79' or 'X1' instead of their regular titles.

Uniden

www.uniden.com.au

✔ Shows next two upcoming turns; easy-to-use.

✖ Poor signal in CBD areas; street pronunciations.



Sick of the pedestrians getting places faster than you? Use the TMC service to avoid annoying traffic jams.

SUNA TRAFFIC — TMC

YOUR GPS CAN NOW LISTEN TO THE RADIO FOR THE LATEST TRAFFIC UPDATES

Having directions from point A-to-B is all well and good, but what if there's something in the way? Thankfully there's a solution. Traffic Message Channel (TMC) systems find a way around that blockage. TMC's are a way of transmitting traffic information via FM radio on a "silent" channel which some GPS devices are capable of using to reroute you past excess traffic or accident sites. TMC is widely adopted in Europe (which likewise has a much higher adoption of GPS devices in general) and over the past two years has been set up locally.

Here in Australia, a TMC service named SUNA Traffic is operated by Intelematics Australia, a subsidiary of the Royal Automobile Club of Victoria (RACV). The SUNA Traffic service collects traffic information from traffic cameras, emergency services and road loop sensors embedded near traffic lights. The information is encoded in a standard form then broadcast across an encrypted FM service which can be picked up by TMC enabled GPS devices.

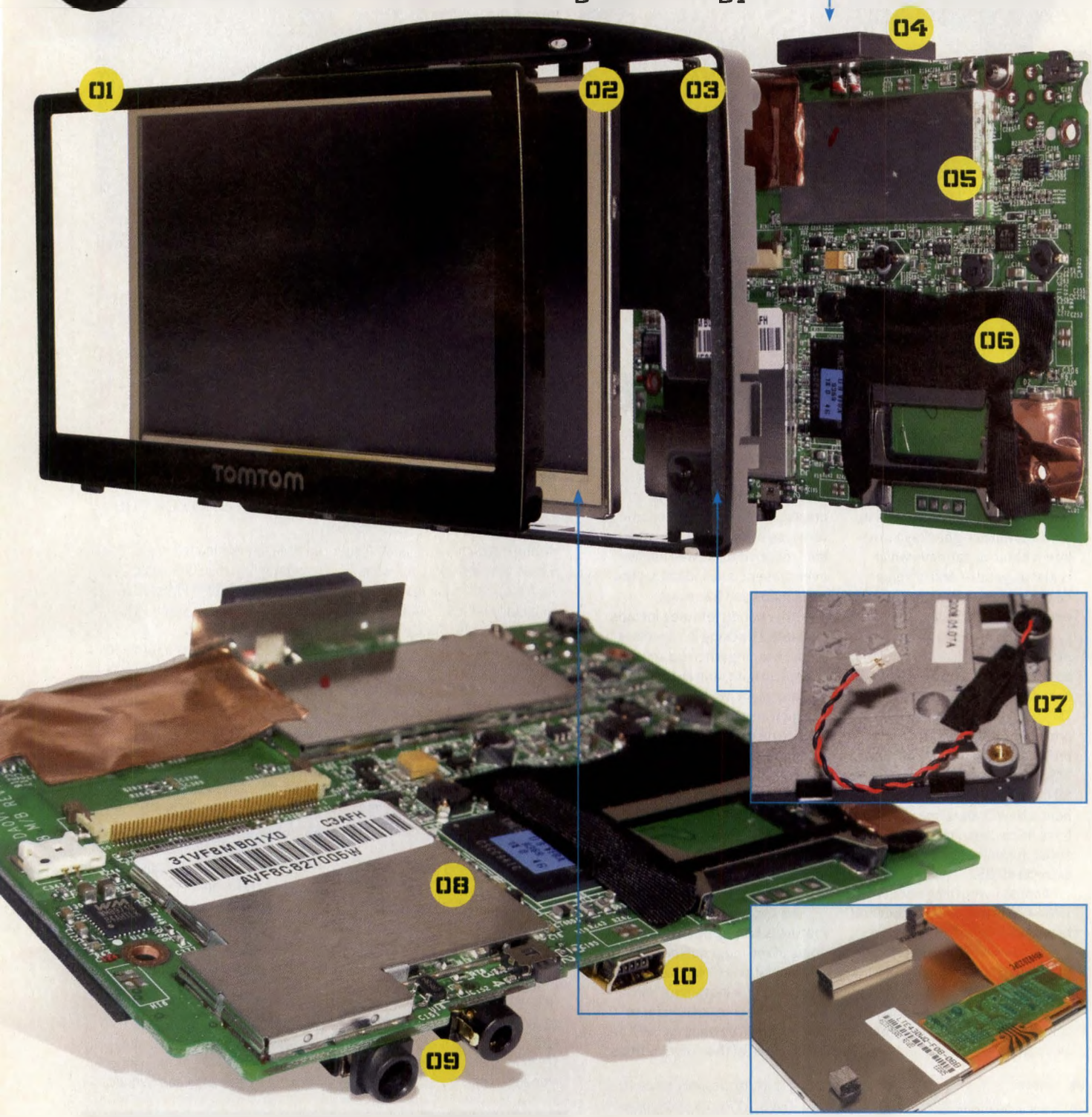
At a basic level, the information provided by a TMC service only includes a location and time indicating a black spot. GPS's then apply that area to their maps and your current routing information to see if it overlaps. If it does, it looks for an alternative route that avoids that particular spot. In practice the service only applies to freeways, tollways and arterial roads.

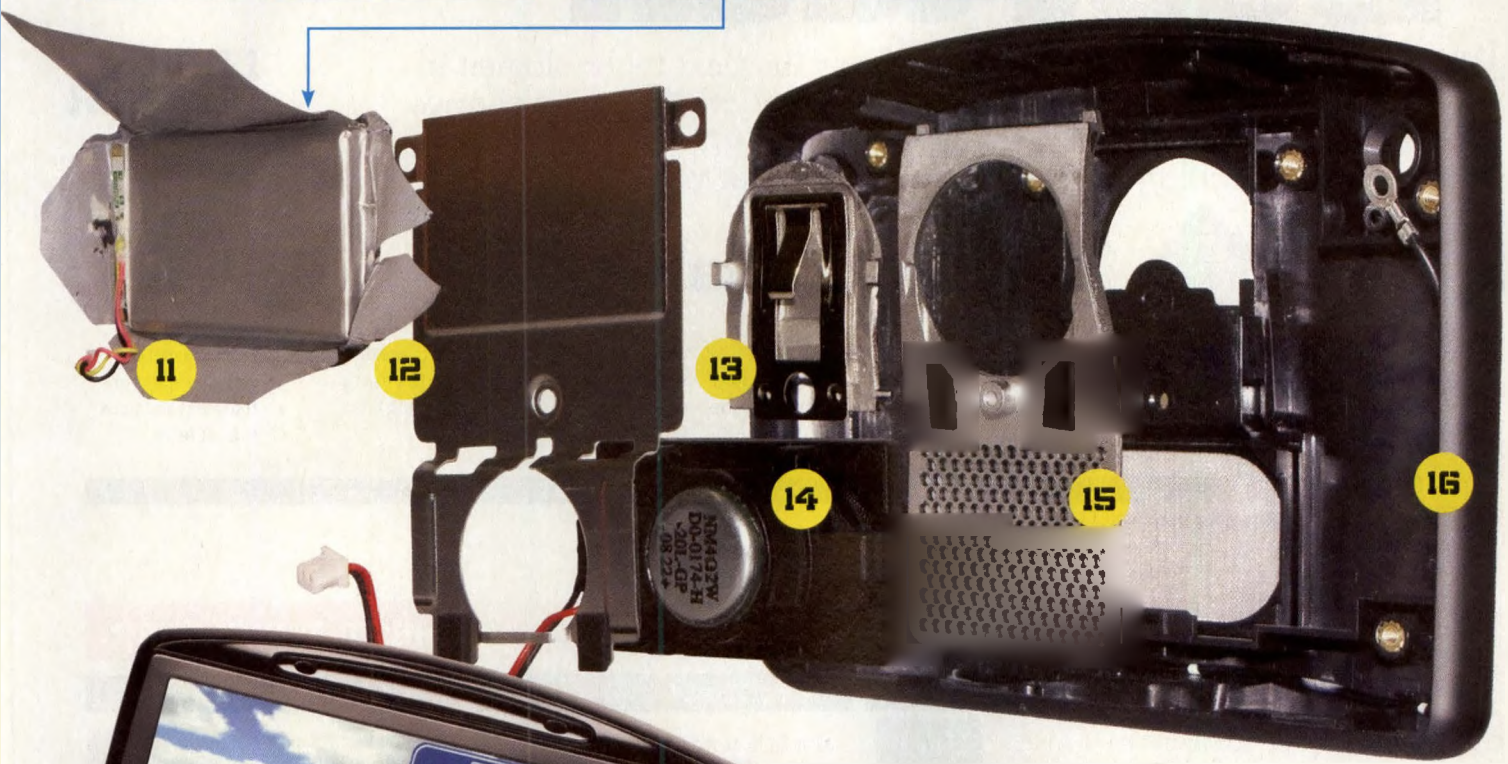
Out of the box TMC support is usually only found on higher end GPS devices, sometimes only with a separate purchase of a TMC receiver (usually built in to the GPS mount). The subscription to the SUNA Traffic service is included in the box with compatible devices, and there are no ongoing fees.

SUNA Traffic broadcast and information is only available in Melbourne, Brisbane and Sydney.

exploding tech

NO. 30 This month we're exploding the advanced TomTom GO 930 GPS with maps of 45 countries and advanced routing technology.





TomTom GO 930

The TomTom GO 930 boasts the latest GPS technology in a unit, perfect for the world traveller. The GO 930 includes maps of Australia, NZ, USA and Canada, plus Eastern, Central and Western Europe. It also features Advanced Lane Guidance, TomTom IQ Routes, TomTom Map Share, speech recognition, hands-free calling via Bluetooth, Enhanced Positioning Technology, text to speech, Latest Map Guarantee, an MP3 player with FM transmitter plus many more features.

1. Glossy, piano black LCD bezel with laser etched logo
2. 4.3in 65K color Transmissive Active Matrix TFT display
3. Front moulding
4. Ultra-sensitive GPS antenna
5. Printed circuit board
6. SD card reader for storing MP3 songs, audiobooks or additional maps
7. Microphone for hands-free calling and voice commands
8. Powerful processor
9. Line-out jack for routing music or navigation instructions to your car audio system
10. Mini USB port for charging or connecting to a computer to receive free Map Share updates or install loads of free content from the TomTom community
11. High-performance rechargeable Lithium Polymer battery
12. Hardware to keep the speaker in place
13. Spring-loaded latching mechanism for secure and stable mounting
14. Powerful speaker for loud and clear voice instructions
15. Speaker grille
16. Soft-touch moulded back casing

Best tech

APC's independent reviewers point to the best technologies in the top-selling product categories each month. We only change products when a better one comes along. What you see here is the best technology available on the market right now.

LOOK OUT FOR THESE

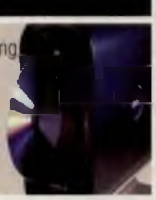
NEW

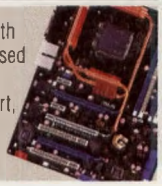
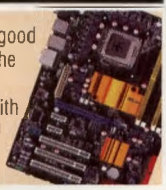
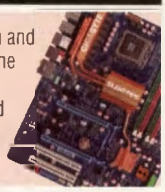
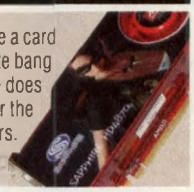
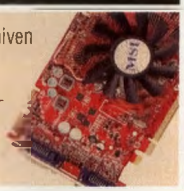
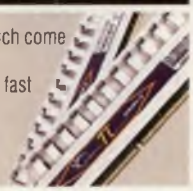
Products marked with this stamp are the latest additions to Best Tech.

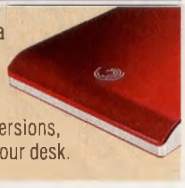
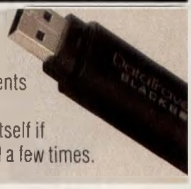
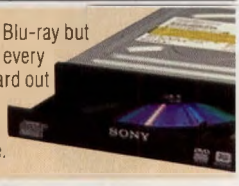
Movers & Shakers

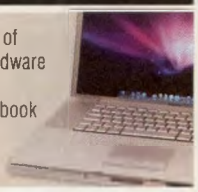
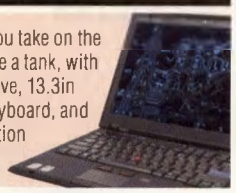
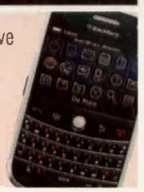
New tech on the move

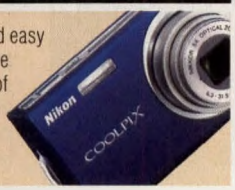
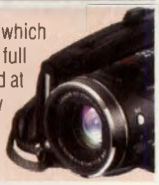
Patriot traditionally hasn't been a big name in RAM in Australia, being mostly tied to the overclocker market. Good news is the prices on this premium quality, ultra-speedy RAM is starting to drop, so the rest of us can get in on the party as well. Remember to get a 3 stick kit for Core i7.

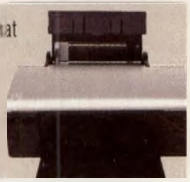
	NOTEWORTHY	BEST VALUE	BEST PERFORMER
GENERAL PC	**Enspire Lightspeed FX**	**Protac Excel gPC**	**Altech NRG Storm**
	Enspire's first with an Intel Core i7, X58 chipset, DDR3, CrossFire and SLI support — the next-generation dream machine by a builder of powerhouse PCs.	Only $499, so what's the catch? A VIA processor, but has 1GB of RAM, 160GB hard disk and DVD burner, and runs cool and quiet. Just swap its gOS linux with XP.	With an overclocked Intel quad-core QX9650 CPU on a 790i SLI motherboard and two Nvidia GTX 280 graphics cards, this beast is perfect for gaming.
	$3,363 > Enspire > www.enspiredigital.com	$499 > Protac > www.protac.com.au	$1,999 > Altech > www.altech.com.au
HTPC	**Sony VAIO VGX-TP2G**	**Shuttle D'VO SG33G5M Deluxe**	**HP Touchsmart IQ700**
	Adventurously designed media centre PC. No screen as it assumes you will connect it to a TV with its HDMI port. Has a 2.1GHz Core 2 Duo and 500GB HDD.	The Shuttle SG33G5M Deluxe is an entire home entertainment system for those that want to hide it away in a tiny box that looks like part of the stereo.	This is the closest the PC world has to the iMac, but with a touchscreen whose GUI that reminds you of the iPod touch. Superb home media centre.
	$2,399 > Sony > www.sony.com.au	$669 > Shuttle > www.shuttle.com	$3,299 > HP > www.hp.com.au
TINY PC	**Dell Studio Hybrid**	**Shuttle SD30G2 PLUS**	**ASUS Eee Box B202**
	PCs are clearly tired of being branded boring. But like Apple, Dell expects a premium for these designer pill-shaped low-power PCs. 	The original shoebox PC with a matching price. A good cooling system keeps it quiet. All you need to add is a hard disk, RAM & CPU.	ASUS has taken its enormously successful Eee PC concept and applied it to a desktop. Atom-powered, 1GB of RAM and 80GB drive.
	$2,135 > Dell > www.dell.com.au	$269 > Shuttle > www.shuttle.com	$429 > ASUS > www.asus.com.au

	NOTEWORTHY	BEST VALUE	BEST PERFORMER
CPU & MOBO	**ASUS Striker II Extreme** This one is for gamers, with the best of everything. Based on Nvidia's 790i chipset, with three-way SLI support, six SATA ports and ten USB ports.  **$679 > ASUS > www.asus.com.au**	**ASUS P5QL-E Motherboard** Most of the goodies of a good motherboard but at half the cost. Great performance, 400MHz overclocking, with speedy frontside bus and newer PCI 2.0 Express.  **$130 > ASUS > www.asus.com.au**	**Gigabyte EP45T-Extreme** One of the most thorough and capable Intel boards on the market, offering serious performance, cooling and features, with heaps of PCI slots.  **$359.00 > Gigabyte > www.gigabyte.com**
GRAPHICS CARDS	**Sapphire HD 4870 GDDR5** The goal was to create a card that delivered absolute bang for buck, and this one does it. Relatively cheap for the performance it delivers.  **$449 > Sapphire > www.sapphiretech.com**	**MSI HD 4670n512MB GDDR3** We didn't expect a lot given the price, but were pleasantly surprised. Beats Nvidia's 9500 GT in all games and synthetic benchmarks.  **$159 > MSI > www.msi.com.tw**	**XFX GTX 260 XXX Edition** The GTX 260 is the performance card to get — not as extreme as the GTX 280, but nearly as powerful and much cheaper. A must-have. **$549 > xfx > www.xfxforce.com**
RAM	**G.Skill PC3-12800 PI 4GB kit** Memory modules which come with a fancy heatsink, allowing for seriously fast memory. We ran it at 1,740MHz at 7-7-7-24/1.96V.  **$399 > GSkill > www.gskill.com**	**Kingston HyperX PC3-14400** Entry-level DDR3 RAM that's Nvidia-certified, meaning the kit will achieve the rated speed on a 790i chipset. Tests show it runs stably in an intensive environment. **$299 > Kingston > www.kingston.com**	**Patriot 4G DDR3 Kit** While expensive at $350 and needing a 64-bit OS to use the full 4GB, this DDR3 kit means you'll be ready for Intel's Core i7 CPUs. **$350 > Patriot > www.patriotmemory.com**
PSU	**Antec SP-500** One of the newer nearly silent power supplies with dual+12V rails, four serial ATA connectors and a dual fan design for quiet operation. **$300 > Rectron > www.rectron.com.au**	**Enermax Modu82+ 625 Watt** A mid-range power supply separated from cheaper power units by its high efficiency. Between 20-100 percent load, will achieve a minimum of 82% efficiency. **$180 > Enermax > www.enermax.com.tw**	**Thermaltake ToughPower 1500W** Delivering a monster 1,500 watts. If you're going to run high-end graphics cards in SLI or Tri SLI mode, this is the power unit you want, with 100 amps split across four rails. **$519 > Thermaltake > www.thermaltake.com**
COOLING	**ASUS Silent Knight II** An unusual design with all copper base, a round array of copper fins, and fans mounted on the side, blowing hot air out the back, but doesn't cool graphics card. **$89 > ASUS > www.asus.com.au**	**CoolerMaster Aquagate Max** Quiet and effective, uses 3/8 piping which allows more waterflow than the usual 6mm pipe. Controlled via USB connection. **$239> CoolerMaster > www.coolermaster.com**	**Noctua NH U12 P CPU Cooler** A CPU cooler that includes dual heat pipes & 120mmm fans. Recorded idle temps for an Intel quad-core Q6600 of 27c/30c/26c/22c, and when gaming 41c/45c/44c/40c. **$98 > Noctua > www.noctua.at**
CASES	**Thermaltake M9D** A classic Thermaltake box with plenty of glowing colours and an alien gaming look, plus huge airflow and easy setup. Very affordable. **$139 > Thermaltake > www.thermaltake.com**	**Thermaltake Spedo Advance** A big black steel case with many features for the price, lots of bays, slots and ports — and a transparent side panel to show it all off. **$299 > Thermaltake > www.thermaltake.com**	**Lian Li Armorsuit P80** A Super Full tower in black brushed aluminium, with a removable motherboard tray and plenty of room. Big iron for serious PC builders. **$595 > Lian Li > www.lian-li.com**

	NOTEWORTHY	BEST VALUE	BEST PERFORMER
MONITORS	**Lenovo ThinkVision L220x LCD** Great image quality for the price. Comes with support for 1,920 x 1,200 that's higher than the 1,680 x 1,050 you usually find in anything under $1,000. **$998 > Lenovo > Lenovo.com.au**	**AOC LCD 2219 P2 22in** A sensational 22in 1,680 x 1,050 display that's fully height-adjustable and tiltable through a 25-degree range and is able to rotate from landscape to portrait. **$349 > AOC > www.aocmonitor-anz.com**	**Dell UltraSharp 3008WFP 30"** The display that makes geeks go weak at the knees: 30in of bright, sharp 2,650 x 1,600 screen with a full complement of modern connectors. **$1,899 > Dell > dell.com.au**
INTERNAL HARD DRIVE	**WD VelociRaptor WD3000GFLS** This drive is so fast it needs its own heat sink. The Velociraptor spins at 10,000rpm and has incredible read speed of 107MB/sec. **$220 > Western Digital > www.wdc.com**	**Seagate 7200.9 250GB** Seagate's Barracudas are perfect for users who are not going to tax their PCs. They are becoming so cheap you can now get a 160GB version for around $50 and a 250GB for $80. **$80 > Seagate > www.seagate.com**	**Seagate 7200.11 1TB** We still find it incredible that 1 terabyte drives are now selling online for less than $200. This Barracuda will give you 1,000 gigabytes of storage. **$180 > Seagate > www.seagate.com**
EXTERNAL HARD DRIVE	**Seagate FreeAgent Xtreme** Doesn't have RAID mirroring but still gives you 1 terabyte of storage and Firewire, eSATA and USB 2.0. Plug it in and it's ready to go. Great price. **$199 > Seagate > Seagate.com**	**Seagate FreeAgent Go** A stylish thin tablet of a drive that comes in good looking brushed aluminium colours in 250, 320 and 500GB versions, plus it looks great on your desk.  **$149 > Seagate > Seagate.com**	**WD My Book Mirror** When you need storage for extremely valuable data the My Book Mirror gives you 1TB, using RAID 1. Should a drive fail, you still have a backup. No FireWire. **$340 > Western Digital > www.wdc.com**
USB KEYS	**Kingston Data Traveler Blackbox** A USB drive that comes with software that encrypts its contents to FIPS 140-2 Level 2 standard. Reformats itself if wrong password used a few times.  **$140 > Kingston > www.kingston.com**	**PQI Intelligent Drive i818** Holds up to 8GB of storage in a 2.5mm thin waterproof and dust-proof outer casing — and because it's for your keyring, you'll never lose it. **$49.95 > PQO > www.pqi.com.au**	**Kingston Data Traveler 150** A 32GB USB key that's virtually a portable hard drive — stick hours and hours of video in your pocket. Incredible. Supports Windows & Mac. **$140 > Kingston > www.kingston.com**
NAS HOME & OFFICE	**D-Link DNS-343 Four Bay NAS** Stick a drive in and it works without any special setup, it's quickly detected on the network, will send email alert if anything goes wrong. **$850 > D-Link > www.dlink.com.au**	**Freedom 9 freeStor 4020 NAS** A four-bay NAS with both Gigabit Enternet and 802.11b/g connectivity. Also supports media streaming and can be used as an FTP server. Supports 1TB drives. **$500 > Freedom 9 > www.freedom9.com.au**	**Thecus N3200 Home NAS** A premium NAS offering incredible flexibility. Visible on the network with little futzing around, plus media server and iTunes server options. **$1,770 > Thecus > www.thecus.com**
OPTICAL BURNERS	**Lite-on BD-ROM 4x External Drive** If you need to create Blu-ray discs this external drive simply plugs into your USB 2.0 port and let's you burn single and dual layer discs at 2x. **$175 > Philips Lite-on > www.liteonit.com**	**Sony DRUV200A** Doesn't burn to Blu-ray but can do virtually every CD/DVD standard out there. Also comes with Nero 8 software.  **$59 > Sony > www.sony.com.au**	**Lite-On iHAP322** A blindingly-fast writing speed of 22x, but also the only burner which can permanently erase the content of DVD±R (DL) and CD-R discs. **$59.95 > Philips Lite-on > www.liteonit.com**

	NOTEWORTHY	BEST VALUE	BEST PERFORMER
NETBOOK	**Dell Inspiron Mini 12** With a 12in screen it's either the world's biggest netbook or the closest thing to a MacBook Air. An 80GB HDD, but only 1GB RAM. **$999 > Dell > www.dell.com.au**	**MSI Wind U100** Heaps of netbook for the price — 10in screen, 1.6GHz Intel Atom CPU and 80GB hard drive, as well as a generously sized keyboard for the class. **$600 > MSI > www.global.msi.com.tw**	**ASUS Eee PC 1000H** A netbook tour de force that's almost a notebook, with a full-sized keyboard, six-cell battery and 802.11 wireless networking. 1kg heavier than the MSI Wind. **$699 > ASUS > www.asus.com.au**
NOTEBOOK ALLROUNDER	**Apple MacBook Pro 17in** The perfect marriage of software and fast hardware in a stylish design. Increasingly the notebook of choice for many professionals.  **$3,799 > Apple > www.apple.com.au**	**Dell Inspiron 1525** Core 2 Duo performance coupled with 2GB RAM and a 250GB HDD — good with Vista. **$999 > Dell > www.dell.com.au**	**Lenovo ThinkPad X300** The notebook you take on the road — built like a tank, with a 64GB solid drive, 13.3in screen, great keyboard, and endless connection options.  **$3,999 > Lenovo > www.lenovo.com.au**
DESKTOP REPLACEMENT	**Dell XPS M1730 (512MB Graphics)** Yes, notebooks can be serious gaming machines. This Dell comes with an NVIDIA GeForce 8700M GT graphics and SLI technology, 4GB of RAM and two 320 GB drives. **$3,999 > Dell > www.dell.com.au**	**Acer Aspire Gemstone Blue 8920G** Incredible 18.4in, 1,920 x 1,080 HD display. There's a Blu-ray drive and 5.1 surround sound. This Core 2 Duo T8300 machine is a 4.1kg head-turning beast. **$2,699 > Acer > www.acer.com.au**	**HP X18** Top-of-the-line portable media centre. With an 18.4in, 1,920 x 1,080 screen, a Blu-ray player, a DVB-T/Analogue TV-tuner and great speakers. **$3,899 > HP > www.hp.com.au**
SMARTPHONE	**iPhone 3G** The iPhone is the bomb for general use — glorious UI, 3G speed, more and more apps. We keep seeing more and more professionals using it at work. **Plan > Apple > www.apple.com.au**	**Palm Centro** An affordable and compact handset that's not flashy but has heaps of good software because it runs the Palm OS. Ideal for first-time users who don't want expensive bling. **$299 + plan > Palm > www.telstra.com.au**	**BlackBerry Bold** The Bold is the most addictive BlackBerry yet, with built-in Wi-Fi and GPS, a stunning screen and DivX/XviD playback. It's still the best for email too.  **Plan > RIM > www.blackberry.com**
GPS	**Uniden TRAX 430 GPS** Comms company Uniden has released a ripper of a GPS device, impressing with its ease-of-use, exceptional screen and ability to create 3D maps. **$379 > Uniden > www.uniden.com.au**	**TomTom ONE XL** The most affordable TomTom that delivers the features that matter, with the same display and navigation engine of the more expensive TomToms. **$399 > TomTom > www.tomtom.com**	**TomTom GO 930** The top-of-the-line TomTom delivers traffic messaging, intelligent live routing, FM transmitter, voice-recognition and text-to-speech. **$849 > TomTom > www.tomtom.com.au**
MEDIA PLAYER	**Sony Walkman NWZ-E436F** A good alternative to the iPod nano, the 4GB Walkman is a slim, great-looking player with a good UI and excellent screen. We think its sound quality beats the nano's. **$129.95 > Sony > www.sony.com.au**	**Apple iPod nano** A new long narrow design and with an accelerometer that kicks the nano into landscape mode when you hold it sideways. Now in 8GB and 16GB models. **$199 > Apple > www.apple.com.au**	**Apple iPod Classic 80GB** The number-one selling MP3 player of all time — with the most intuitive menu system and super iTunes software that combines downloads and music management. **$319 > Apple > www.apple.com.au**

	NOTEWORTHY	BEST VALUE	BEST PERFORMER
COMPACT CAMERAS	**Fuji Finepix S2000HD** Looking more expensive than it really is, this DSLR wannabe captures great images in a stylish body. Good for the beginner to learn with. **$345 > Fuji > www.fujifilm.com.au**	**Nikon Coolpix S550** Good, cheap and easy to use with all the useful features of its more expensive competitors.  **$250 > Nikon > www.nikon.com.au**	**Canon IXUS 80 IS** Probably the best digital compact on the market, with every function you could ever need but still at a great price. **$379 > Canon > www.canon.com.au**
DSLR CAMERAS	**Sony Alpha A900 (25 megapixels)** With the highest pixel count of any DSLR on the market, not to mention a well-built frame and good controls, this is worth a look. **$4,499 > Sony > www.sony.com.au**	**Canon EOS 450D** The best low-price DSLR you can get. Suited to the amateur photographer, the 450D offers heaps of features in a tiny DSLR frame. Bargain! **$949 > Canon > www.canon.com.au**	**Nikon D90** This is just sexy! The first DSLR with HD video, the D90 is the best non-professional camera you could get without sending yourself broke. **$1,699 > Nikon > www.nikon.com.au**
HD CAMCORDER	**Sony Handycam HDR-TG1E** The world's smallest and lightest HD camcorder. It records 1,920 x 1,080 in interlaced format. If small size is important, this is the ideal camcorder for you. **$1,599 > Sony > www.sony.com.au**	**Panasonic SDR-S7: SD Card** Tiny and affordable quality (41 x 59 x 102mm) weighs less than 180 grams, records standard definition onto a 4GB flash card (16GB optional). **$472 > Panasonic > www.panasonic.com.au**	**Canon HV30** Supports MiniDV tape — which means the it can record in full HD instead of AVCHD. And at $1,499, it's also incredibly cheap given its range of features.  **$1,499 > Canon > www.canon.com.au**
HDTV	**Pioneer Kuro PDP-LX508A** This is the best TV bar none — fortunately, the Panasonic and Sonys are catching up and helping lower prices. **$5,999 > Pioneer > www.pioneer.com.au**	**LG 42PG60UD** A very affordable, stylish, frameless 42in plasma HDTV with an excellent bright screen, lots of inputs and 100Hz true motion with industry-leading response time. **$1,499 > LG > www.lg.com.au**	**Sony Bravia W-series** One of the best LCD HDTVs: delivers great blacks, superb colour fidelity and great upscaling. **$2,699 > Sony > www.sony.com.au**
TV TUNER	**AVerTV DBT-Volar GPS USB Tuner** In a market filled with USB TV tuner sticks, AVerMedia has differentiated with a GPS device. So if you need to watch TV on a notebook, this device will ensure you don't get lost. **$115 > AVerMedia > www.avermedia.com**	**Winfast Palmtop DTV200H** One of those rare TV capture cards that works straight out of the box. A hybrid USB tuner that records digital and analogue TV and delivers excellent picture quality. **$95 > Leadtek > www.leadtek.comau**	**Hauppauge WinTV PVR-350** With a 125-channel capable receiver, this PCI card pauses and replays shows, is able to schedule recordings and burn them to CD or DVD. Great quality. **$429 > Hauppage > www.hauppage.com**
DVD & BLU-RAY	**Sony PlayStation 3** Yes, it's a games console, but it also doubles as a Blu-ray player that's as good as any standalone devices on the market. It's the same price as some of the better ones, so do your sums. **$699 > Sony > www.sony.com.au**	**Kogan Blu-ray Player** The cheapest Blu-ray player on the market — also plays WMV, MPG and AVI files. Features Dolby Digital and Dolby Digital Plus audio playback. **$349 > Kogan > www.kogan.com.au**	**Pioneer BDP-LX70A** A top-of-the-range player that delivers full HD video and 24p for true cinematic playback and supports the highest Dolby sound standards. You need a top HDTV to take advantage of it. **$1,799 > Pioneer > www.pioneer.com.au**

	NOTEWORTHY	BEST VALUE	BEST PERFORMER
PVR	**Foxtel iQ2**	**Wintal PVR2HD**	**Panasonic DMR-BW500**
	Only for Foxtel users — can pause live TV, fast forward through commercials and shuttle through recorded programs — and all the connections you'll ever need.	If all you want is a PVR without an analogue tuner or smarts then this PVR is ideal — it's affordable, it does the job and comes with a big 320GB hard disk .	Can record two HD programs simultaneously to its 500GB hard disk or directly to Blu-ray media. Ethernet port.
	Plan > **Foxtel** > **www.foxtel.com.au**	**$499** > **Wintal** > **www.wintal.com.au**	**$2,199** > **Panasonic** > **Panasonic.com.au**
ROUTER	**Belkin N1 Vision**	**TP-Link TL WR941ND Wireless N**	**Netgear RangeMax Wireless-N**
	There is a lot to like about this router. The LCD screen is more than a gimmick, and its support for Gigabit Ethernet puts it in the top class — it just doesn't support 5GHz.	A Draft 2.0 N router with MIMO, using three adjustable antennas for speeds of up to 200Mbit/s. Performance is decent and the documentation is good.	Supports 802.11n and Gigabit Ethernet, easy to set up and configure thanks to its SmartWizard, and has excellent range and performance. Gets close to networking nirvana.
	$350 > **Belkin** > **www.belkin.com.au**	**$129** > **TP-Link** > **www.anyware.com.au**	**$349** > **Netgear** > **www.netgear.com.au**
PRINTER OFFICE	**Fuji Xerox DocuPrint C2255**	**Samsung CLP-350N colour laser**	**Oki C5950dn**
	Strong, sturdy and packed with features that justify its price tag. Its print quality is above average and it's also relatively quiet.	An affordable colour laser with the specs to meet basic business requirements, with PostScript3 and PCL6 emulation support and network capability.	A serious colour LED printer for workgroup printing, with a 60,000 page a month duty cycle. Achieved excellent print quality in our testing.
	$3,960 > **Fuji Xerox** > **fujixeroxprinters.com.au**	**$399** > **Samsung** > **www.samsung.com.au**	**$2,035** > **Oki** > **www.oki.com.au**
PRINTER HOME	**Epson Stylus Photo R290**	**Canon Selphy ES2**	**Samsung CLP-300N**
	If you want an inkjet that prints phenomenally good photos at 5,670 x 1,440dpi, the R290 should be at the top of your list. 	A dye sublimation printer, the Selphy can print directly from every variation of memory card and even from mobile phones, and you don't need a computer.	Faster, quieter, and the colour is good for most general printing. Samsung's affordable, network-ready CLP 3000N is perfect.
	$1,099 > **Epson** > **www.epson.com.au**	**$299** > **Canon** > **www.canon.com.au**	**$349** > **Samsung** > **www.samsung.com.au**
MFC	**Lexmark X4875**	**Epson Stylus Photo TX800FW**	**Epson AcuLaser CX11NF**
	The X4875 is a nice-looking unit that loses nothing to higher-priced competition and looks good in its piano-white finish.	A fully featured MFC with an automatic document feeder and full network (Wi-Fi and Ethernet) support — also first-class photo printing.	This MFC does everything well, with 25ppm mono and 5ppm colour, auto document feeder and scanning res of up to 9,600 dpi.
	$199 > **Lexmark** > **www.lexmark.com.au**	**$399** > **Epson** > **www.epson.com.au**	**$1,400** > **Epson** > **www.epson.com.au**

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THE TECH BARGAINS MAVERICK

From seemingly nowhere, a young Russian-born 25-year old is starting to make a big impact on Australian retail with a no-middleman online sales approach.

Ruslan Kogan came to *APC*'s attention when we started getting enquiries from readers about his "Kogan Technologies" brand and its seemingly too-good-to-be true pricing. One reader in the market for a video camera told us he'd narrowed down his choice to a Panasonic SDR-S7 (RRP $472) and a Kogan Full HD 1080P camera ($399) and wanted our opinion on the legitimacy of the Kogan brand.

On the surface of it at least, that was no contest. Panasonic's little machine only recorded in standard definition and was more expensive than the Kogan, which was a full HD camcorder, recording progressive video at 1,920 x 1,080. In fact, the cheapest full HD competitors to the Kogan Full HD camcorders cost over $1,000. And barely a day after checking out Kogan's insane pricing, we received a press release from a major tech public relations company spruiking Kogan products.

There are many small-time online entrepreneurs who sell products at bargain prices, but none have the resources to afford large public relations companies. Shortly after the press release, we also learnt that the first release of an Android-powered smartphone in Australia was going to be made by, you guessed it, Kogan. It would be an iPhone-style phone built to his specifications in China that would sell for around $199.

Whoever this Kogan was, he was making waves. So we went to look at his operation. What we found was a young Melbourne-based iconoclast convinced that his online business model is the way of the future because it embraces the internet like few other businesses do.

Ruslan Kogan told *APC* his private company had turned over $5 million last year but was on track for $15 million next year: "We are growing at least 20% month-on-month at the moment, so Australians are really embracing our business model. Not only do we bring technology to Australia, but our time-to-market is faster than that of most other companies. We've shown that with things like having the first digital photo frames on the market, the first LCD TVs with built-in DVD players, and also having the first TVs that can play back DivX files."

Kogan started his business about three years ago but his passion for technology began a lot earlier, shortly after his family moved from Belarus to Melbourne when he was five. "By the age of nine I put together my first computer and started playing around with what was DOS at that stage. I was then always into technology and gadgets and the latest mobile phones." At school, Kogan made money by buying broken phones, fixing them and selling them in the Trading Post. He also studied hard, topping the state in his final high school exams in information processing and management.

After an IT and business university degree, he went to work as a network manager, and then a management consultant. It was in late 2005 when he was 22 that he decided to start his own business. "The reason that came about is because I was looking for an LCD TV at the time, so I walked around retail stores. I found I couldn't afford one even though I was earning some decent money."

Appalled by the high cost of HDTVs, he checked what the TVs actually cost to make. As a gadget nut, he's previously bought gadgets directly from Chinese manufacturers to save money (and deal on ad hoc basis on eBay), so he made some enquiries. "My contacts in China as a consumer gave me an avenue in. After I saw the LCD TV prices and did some enquiries to what the costs to manufacture were I discovered that there was a massive gap in between what things sold for overseas and what they sold for on the Australian market.

"I realised the reason for that gap was that, one, there was not enough competition in Australia, and two, the local retailers did not have very streamlined business models, having traditionally owned the market for several years."

That experience shopping for TVs put Kogan on his new career path. He could see

a business opportunity, so within a week he resigned from the management consultancy to start his own business, against the wishes of his family. "My family said 'You've worked so hard and done your university and now you've got a great job, don't give it up,' but I knew there was definitely room in the market for someone to undercut the big brands."

Kogan started by importing two models of LCD HDTV. "I was just testing the waters and bringing in the smallest container there was, which was a 20 foot container of 32in and 40in TVs."

He sold his first TVs on eBay. "We sold that first container very quickly: a lot of educated consumers who shop online looked at our product offering, lined the specs up side by side and could see the value we were giving them. For example our 32in TV at that stage actually used a Samsung panel. We were selling it for about $1,000 but if you wanted the same thing in a retail store you needed to spend between $3,000 and $4,000."

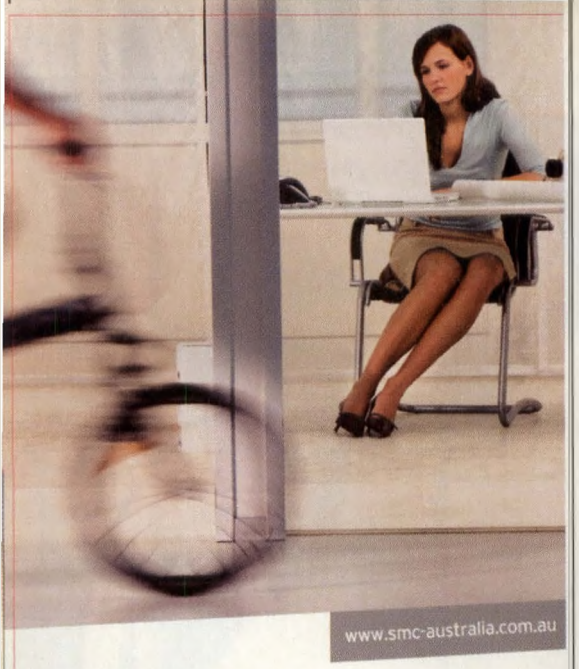
Kogan has since expanded his range to include LCD TVs in all sizes, ranging from 16in to 47in, as well as TVs with added features such as built-in DVD players, USB ports and so on, and new products such as two GPS devices and GPS watches. He now has products built to his specifications as well as rebranding others under the Kogan name.

Kogan says he's now built up some very good partners in China ("We are getting very good prices from all our factories") and is running a very streamlined business. "It's direct to the customer, so the container gets loaded in our factory in China, gets shipped to Melbourne and as soon as it's unloaded we put a courier sticker on it and it goes straight to customers throughout Australia."

Apart from the good prices he's getting from Chinese manufacturers, Kogan says it's the streamlined model that enables his business to pass on the lower prices. "We cut out all the middlemen, so you don't have everyone who traditionally takes a cut, like a distributor, importer, retailer and wholesaler and all of those guys.

"On top of that, our business model internally is tweaked to promote cost savings for customers through things

A full HD camcorder for under $400, it's the kind of deal you can expect from Kogan.



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Bigger retailers could never match that, he says. "One thing that any person who visits our web site can be certain of is that with any product we sell, they are not going to find anything with similar specifications cheaper anywhere in Australia, and that's whether it's our Blu-ray player or digital video camera or LCD TVs." This is reflected by the fact that 50 to 70 per cent of his containers coming into Australia are already pre-sold, he says.

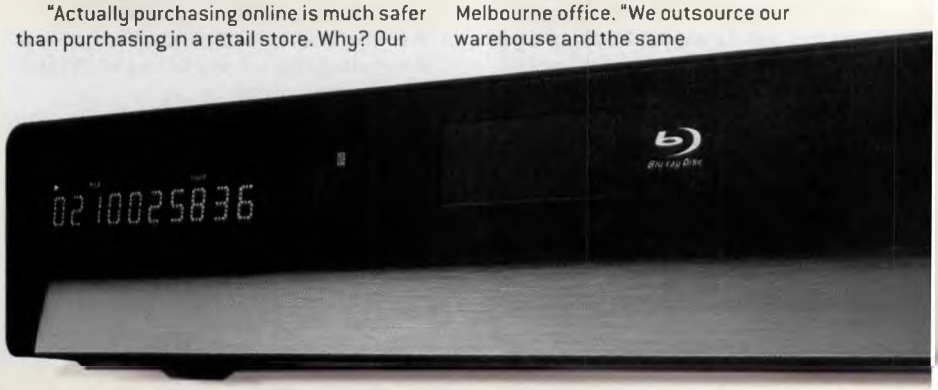
But Kogan insists his business is not just about streamlining costs and being efficient. It's also using the internet to market Kogan Technologies in ways that many traditional companies haven't yet grasped. For instance, Kogan is cleverly using the internet to build trust in his brand and awareness of it among consumers by giving his customers every opportunity to offer feedback publicly on his business.

"Actually purchasing online is much safer than purchasing in a retail store. Why? Our web site and our presence in the online community is fully transparent. Anything we sell, customers get to leave reviews and feedback. You can see exactly what our last 10,000 customers thought about a transaction with Kogan.

"But if you walk into any retail store, you don't know if the last guy who bought this TV was happy with the service, whether he thought the salesman had told him the truth about all the features, and whether he had any trouble returning it or getting it fixed. Online all this is transparent, so if anyone Googles "Kogan review" or looks at the reviews they will see what our customers think of us. If anyone is going in there to make a decision, there is a lot of data on the internet to assure them they are making a good purchase."

Kogan is also using the net to deliver less costly but effective customer service. "While we have a very efficient business model, one thing we have done is ensure it does not affect our customer service. In fact we have taken customer service up a notch and offer things like live chat and email responses 24/7 so no customer is ever waiting more than a couple of hours for an email response at worst."

Kogan employs 12 people in the Melbourne office. "We outsource our warehouse and the same

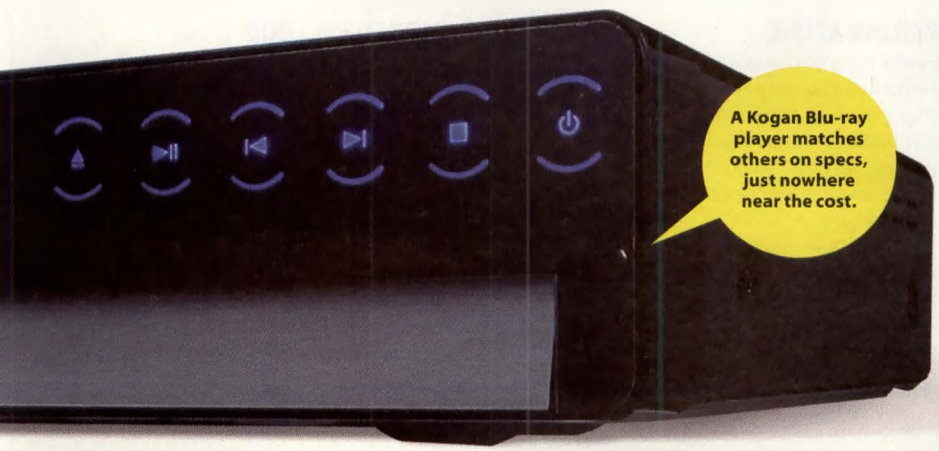


with our delivery. We also employ a few part-time uni students who prefer to work all sorts of weird hours, and so ensure that emails are replied to all through the day."

So what are his best deals? A look at Kogan's prices shows that they are cheaper across the board than most retail and online competition, although he points to the full HD camcorder as an unassailable bargain. "I know the digital video camera is something that we are absolutely smashing the competition on. We are selling that at $399, and anything in the retail stores you are looking at over $1,000."

Kogan's Blu-ray external drive is also another keenly priced product at $349, while Kogan's Ezinav GPS with a 4.5in touchscreen also seems great value at $249. *APC* is looking forward to seeing them in our Labs to see how they stand up to some rigorous testing. More of them may turn up in our Best Tech section in the next few months.

But, for many consumers, Kogan doesn't need computer magazines to give him a testing seal of approval. His sales are going through the roof. Kogan Technologies is not experiencing any downturn as a result of the economic climate. In fact, the recession and people's desire to save may be a big driver of its growth. "We are experiencing growth month-on-month no matter what the economic conditions are," he says. "People are very interested in what we have to sell."



A Kogan Blu-ray player matches others on specs, just nowhere near the cost.

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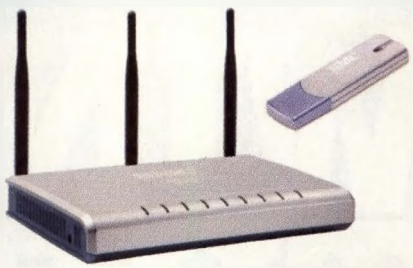

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	TechVille 07 3323 3232 Suite 7A/3 Zamia St, Sunnybank QLD 4109
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WINDOWS IN THE CLOUD!

Will cloud computing mean clear skies or storm clouds ahead for Microsoft? Windows Azure is the biggest gamble in a long time for a company that's never been famous for internet innovation. **Simon Bisson** checks it out.

Microsoft didn't just unveil Windows 7 at its Professional Developers Conference; it also began to reveal what it's going to do to compete with Amazon's web services (AWS), Google's AppEngine and services like Salesforce.com.

In a keynote speech on the first day, Ray Ozzie — Bill Gates' successor as Microsoft's Chief Software Architect — unveiled Microsoft's cloud-computing platform, Windows Azure. It's a story that the industry's been waiting a long time to hear.

Back in the early days of the internet, developers showing clients their designs for new applications used an icon of a cloud to imply the various servers and services that make up the public internet. That cloud became a fixture of PowerPoint slides, and quickly entered everyday vocabulary as a place where everything just happened.

Distributed utility computing platforms like Google's AppEngine rapidly became known as cloud services: applications run on someone else's servers in someone else's data centre. All you need to do is write the code, install it on the server and let your users at it. There's no need for management tools, backup software or even a massively scalable array of servers. Like the cloud famously represented on a PowerPoint chart, everything just happens.

Most cloud-computing platforms require you to completely change how you develop applications. Google's AppEngine only runs Python code, for example, and uses a relatively simple database. Amazon's AWS are based on the Elastic Compute Cluster's virtual servers and the Simple Storage Service; while Amazon provides some of the plumbing that you'll need, you'll still need to build much of your own cloud infrastructure in order to give your users a smooth service.

UNVEILING AZURE

Microsoft's entry into the cloud is based far more around the Azure Services Platform than the underlying Windows Azure cloud operating system. Originally codenamed Red Dog, the Azure platform includes Live Services (a mix of identity and authentication tools) combined with the Live Mesh synchronisation tools,

.NET Services for workflow and access control, SharePoint Services collaboration tools, SQL Services for storage and reporting and the online Dynamics CRM platform.

These new services allow you to take advantage of the platform that Microsoft uses for its own apps. You'll be able to use .NET and ASP. NET code in your applications (unmanaged native code is promised for a future release), making it easy to take existing code up into the cloud — or to build some completely new cloud-based applications.

Microsoft's vision is much the same as that of its rivals: a platform that's as easy to use and manage as a server in your own data centre, but one that has the massive scale and reliability of a geographically distributed clustered network.

DEVELOPING FOR THE MICROSOFT CLOUD

Microsoft has long supported a single method of building applications for all its supported platforms. Fire up Visual Studio and you can write code that will run on Windows Mobile phones, desktop PCs and servers as well as on Apple Macintosh hardware (using Silverlight). It's not surprising then that Microsoft's Azure cloud platform lets you develop applications as if it was just another big Windows server. Applications are developed in Visual Studio using familiar .NET languages and techniques. However, Azure applications won't have the familiar Windows user interface. Instead, you'll use ASP.NET

The Azure Developer Portal allows users to manage their accounts, create new projects and monitor resource use.
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to hook them up to web front-ends or to Silverlight rich internet applications. You can also connect them to local Windows applications through web services and the Windows Communication Foundation.

The foundation of Azure is a hypervisor-based operating platform. This means that apps running in Microsoft's data centres are isolated to make sure that they won't interfere with each other — even while they're using the same computing resources. Microsoft is using this approach to give Azure apps what it calls 'scalable hosting' — or the ability to support everything from a fraction of a server for a simple web application to a whole cluster of servers running a set of enterprise services. Security is going to be very important, and the Azure hypervisor will also manage the code running on the cloud servers, filtering actions and keeping apps from accessing the underlying platform. The result is a cloud operating system that works with global data centres, managing the whole infrastructure and hiding its complexity from your applications.

The cloud service that Microsoft is delivering lies somewhere between the extremes of Amazon and Google. Microsoft has been talking about the value of mixing local software with cloud services, and Azure is the way it intends to deliver these services (and let you build your own). One problem facing anyone working with cloud platforms and services is how you manage the services you're using — and how the platform handles its own growth.

Azure has a set of automated service management tools that let you upgrade your applications without shutting them down or affecting performance. The same tools let Microsoft upgrade the underlying Azure OS without you or your users noticing; applications and OS are managed separately.

MANAGING YOUR APPS

A key piece of the Azure story is what Microsoft describes as the Fabric Controller. This is a piece of software that manages the life cycle of your applications, handling services as well as servers. Azure applications have a service model as well as code — an XML document that handles the various roles that services play in your application. The service model is also used to manage connections to other applications, defining just how connections are made and how they're used as well

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Azure is a mix of services for enterprises and consumers as well as a variety of tools.

The location-based social network BlueHoo runs on the Azure cloud.

AZURE SERVICES

AZURE IS MORE THAN JUST A PLACE TO RUN WINDOWS APPS...

Azure is also a collection of services that you can use in your apps — and that Microsoft will be using for its own online services. You'll find the services familiar, if perhaps a little simpler than their desktop and server relatives.

The .NET Service Bus links apps and components using simple messages to handle data transfer. Components hooked up to the bus can be run on Azure, inside your own firewall or on another network if there's an internet connection and an endpoint that communicates using standard mechanisms.

Azure's .NET Workflow Service is for orchestrating component interactions. Based on the Windows Workflow Foundation, Visual Studio's graphical workflow design tools can build Azure workflows.

It's easy to replace existing NET authentication calls with Azure's .NET Access Control service, simplifying the task of moving existing apps into the cloud. It's hard for cloud apps to manage users, especially if you're connecting to many different internal business services as well as running cloud code. As Azure links into the identity tools and directories that run on Windows Server (as well as the upcoming Geneva federated identity tools), you can build existing identity providers into your Azure apps using open standards.

You'll also need data. SQL Data Services isn't a SQL Server database in the cloud. It's much more like BigTable or S3, able to store data entities in containers. Use it for any data types that you want to store — even binary data. There's a new query language, too: SLINQ. It's based on the LINQ data tools in .NET languages.

as controlling the application's configuration.

It's this approach that lets Azure applications scale. The Fabric Controller handles scaling storage and replicating application data between servers in Microsoft's data centres. The result is that your apps should maintain high availability no matter how many users are online — and without any work on your part.

If you're using Visual Studio, you're ready to start working with Azure as soon as you download the various SDKs. There are separate SDKs for the various services, so you won't be overloaded with new features. And because you have the ability to test applications locally, there's no need to incur costs while you're developing code. You only need to upload everything to Azure when your code is ready to run.

BLUE SKIES AHEAD?

Happily, the cost is one we like, so far at least. The Azure CTP is free, and has very generous usage limits. With a total computer usage of 2,000 VM hours, cloud storage capacity of 50GB and total storage bandwidth of 20GB per day, that's more than enough to run a substantial application or web service. Final pricing is still some way away, and Microsoft is still determining just what to charge.

You can expect usage charges (for storage, CPU and bandwidth) as well as additional charges for different service levels and support. Some services will cost more: expect to pay extra to use enterprise-grade SharePoint Services and Dynamics CRM Services in your applications.

The current version of Azure is just a small portion of what Microsoft is promising. The initial release will give developers an overview of what is to come in the future; now, it's more like Google AppEngine than a more mature cloud platform like Force.com. Basic services and development tools are well designed and easy to use, but significant features — such as a management console — are missing. It's also hard to judge exactly how you'll be able to use Azure without something to tell you just how much of its resources you're currently using.

Azure is a gamble for Microsoft. Cloud computing's steep learning curve dissuades many from switching from traditional architectures; at least Microsoft has integrated Azure with existing development tools and languages. If you write Windows code, you can write for Azure: a head start that will be hard for Google or any other cloud platform to beat.

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PROJECTS, TIPS AND TRICKS

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MASTERCLASS

THE ULTIMATE CONNECTED HOME

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WINDOWS

ORDER OF DRIVERS

Q I heard stories that after installing Windows XP or Vista, you should install the drivers yourself, in a particular order. Is this true? If so, what order should I install my drivers, updates from Microsoft, codec packs and other software that I want to use?

X86

A1 The best way would be to install your chipset drivers first after the Windows install:

1. Chipset drivers;
2. Video card drivers;
3. Any other drivers and utilities important to your computer, such as sound card drivers.

Then, install things like Microsoft Office and finally run Windows Update so it will also download any updates for the installed drivers and software.

Maniac (apcmag.com/forums)

A2 [*Referring to running Windows Update*] Since Windows Update has a tendency to install completely wrong drivers for things, go to the appropriate manufacturer's web site and download the drivers there, as they will be correct and up to date.

Douglas (apcmag.com/forums)

A3 While you are searching for drivers you should look into BIOS updates as well! You'd be surprised what these suckers can improve! Though make sure the BIOS update file is about six months old. So it has had a good test period!

Jumping Giraffe (apcmag.com/forums)

WINDOWS

PERSONALISE VISTA

If you bought your PC from a store with a pre-installed operating system, or if you bought your PC second-hand, you may not have your own details as the registered owner and organisation. Fortunately, a simple registry change will bring your Vista installation home:

1. Start Regedit.
2. Navigate to 'HKEY_LOCAL_MACHINE > SOFTWARE > MICROSOFT > WINDOWS NT > CURRENTVERSION'.
3. Change the details in the Registered Owner and Registered Organisation keys.

HARDWARE

HP 2133 NETBOOK GETS HOT

Q The bottom of my HP 2133 netbook gets hot. Does anyone know why it is like this and does anyone know of any way to cure this problem?

Paul Leung Zhao Feng

A Almost all netbooks get reasonably hot; you could try underclocking the processor: this will generate less heat and use less battery but at the cost of performance. The 2133 is well known for the excess heat it generates from underneath, so apart from underclocking the processor there isn't all that more you can do.

Kristian (apcmag.com/forums)

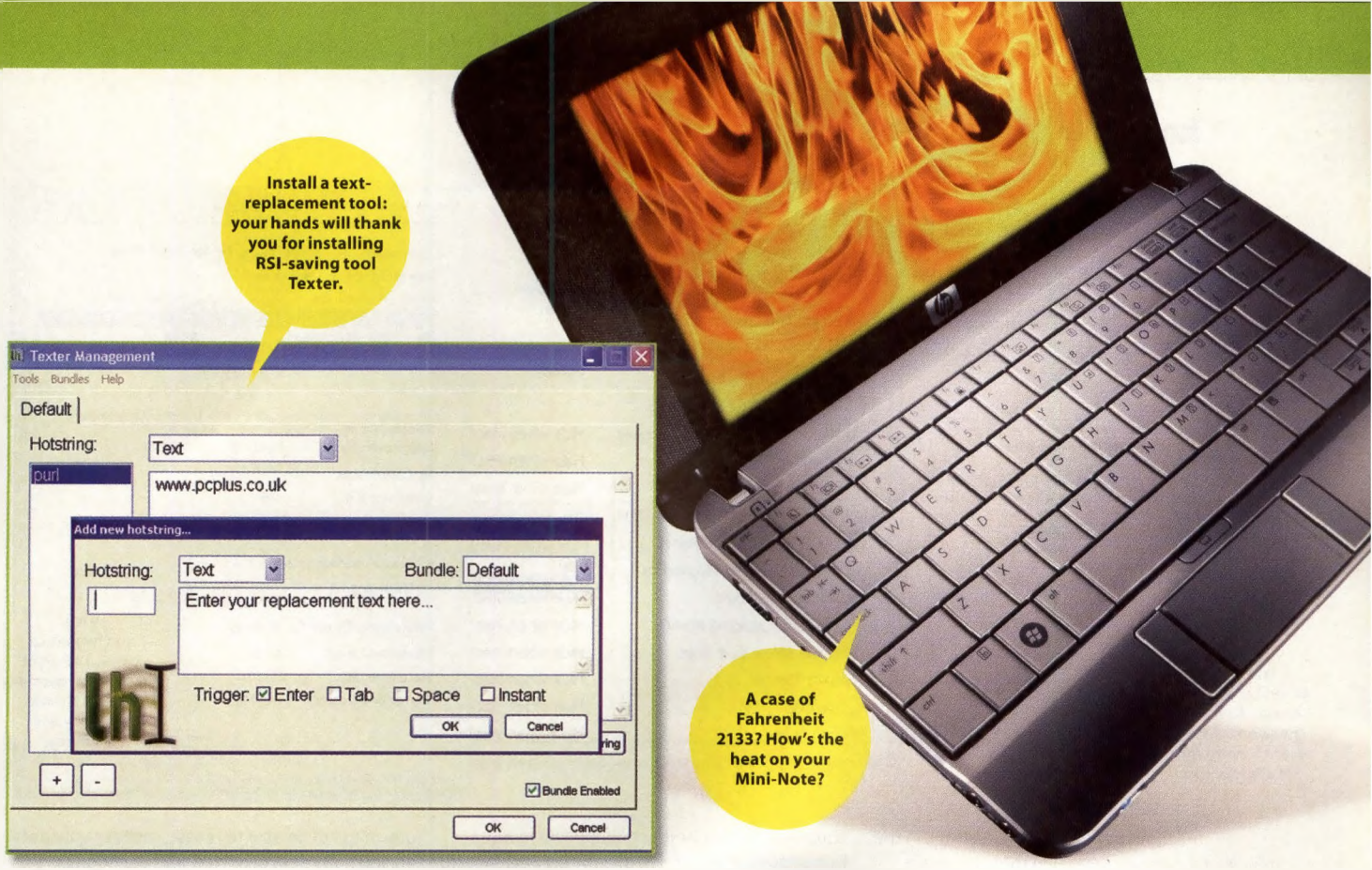
HARDWARE

TOP-SELLING NETBOOKS

Q I'm in the market for a small laptop that I can use mostly for web browsing and light word processing work. Ideally, I want something small, as light as possible and with a long battery life. My attention has been drawn towards the ASUS Eee PC range and the 900 in particular. Before I buy, though, I wanted to ask you whether this would suit my needs and if it's the best product available for the money?

Doug Young

A ASUS has certainly carved out a profitable niche for itself with lightweight and cheap machines, but, as you ask, are these machines actually any



good in practice? Well, in our experience, yes, they are certainly a lot lighter than most notepads and their smaller size makes them much easier to use in confined spaces, such as on trains.

Some of the earlier machines were a little too limited, though, having only 800 x 600 displays, 512MB of system RAM and just 4GB of memory. However, all this has been corrected with the 900 range and the 901 in particular.

This machine features a 1.6GHz processor, 1GB of RAM, a 1,024 x 600 screen, 20GB of solid-state memory and three USB ports. It also offers fast built-in Wi-Fi and will suit your needs.

However, before you buy, we also recommend you take a look at the Acer Aspire One. Although it's a touch larger, it feels sturdier (more like a laptop). For around the same price as the ASUS 901 you can get an 80GB hard disk and Windows XP Home. Or you can get more modest models starting at about $400.

APPLICATION

INSTALL A TEXT-REPLACEMENT TOOL

We all spend far too much time typing the same things again and again. Addresses, help requests, directions — we can save these into a text file and copy and paste them when needed, but it's very tedious. Texter is a marvellously useful free utility that replaces single words with bigger chunks of text as you type, regardless of the program you're running. Once you've installed Texter, hit Ctrl+Shift+H to edit the 'hotstrings' in use (that is, the short words or mnemonics that will be expanded into a larger block of text). Head over to **www.tinyurl.com/yrsl9z** for the download.

WINDOWS

USE CHECK BOXES

Once upon a time, there were three ways to select files in a folder window:

1. Click on any file to select it.
2. Click on a file, then press and hold Ctrl and click on any other file in the list to select both.
3. Click on a file, then press and hold Shift. Now click on a file further down in the list to select the first and last file, along with all the files in between them.

These techniques work fine, but they do rely on the user having two good arms (or hands) to press and hold the appropriate key while using

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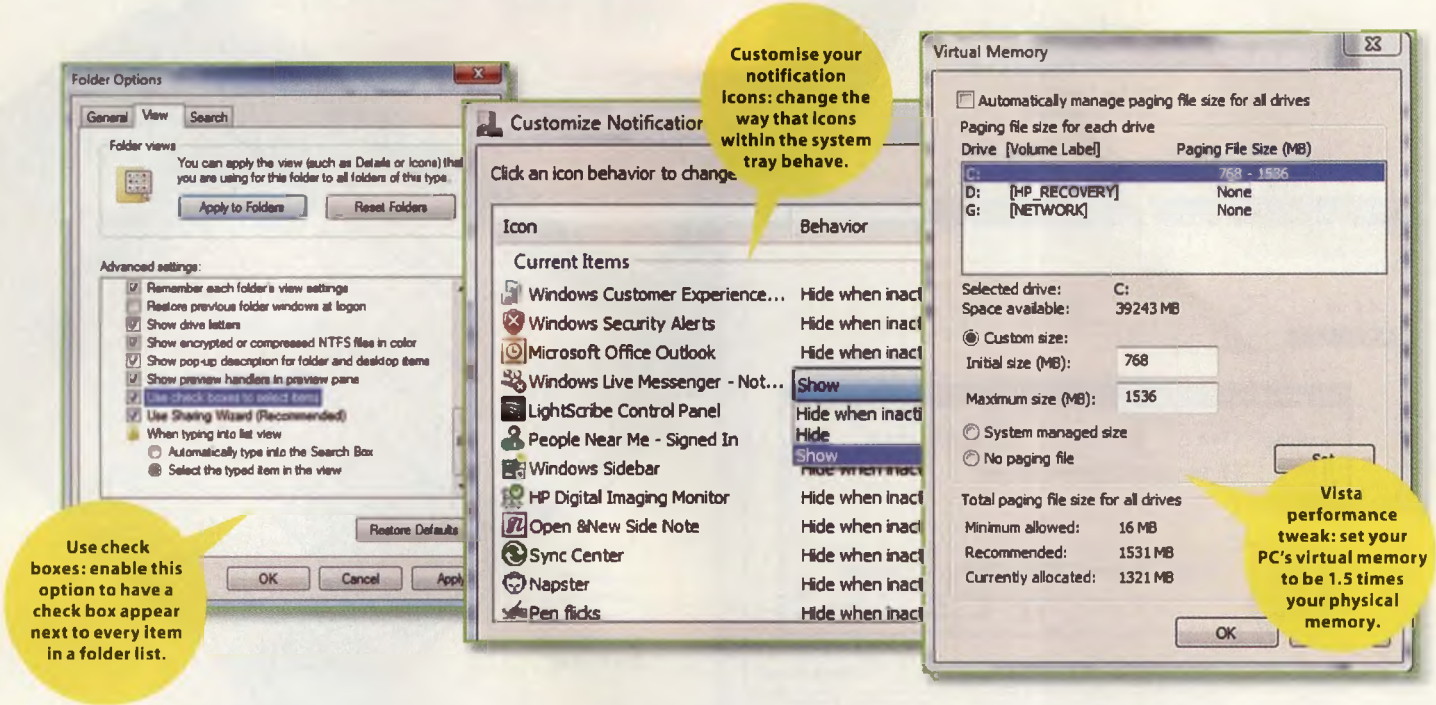

Folder Options
General
View
Search
Folder views
You can apply the view (such as Details or Icons) that you are using for this folder to all folders of this type.
Apply to Folders
Reset Folders
Advanced settings:
Remember each folder's view settings
Restore previous folder windows at logon
Show drive letters
Show encrypted or compressed NTFS files in color
Show pop-up description for folder and desktop items
Show preview handlers in preview pane
Use check boxes to select items
Use Sharing Wizard (Recommended)
When typing into list view
Automatically type into the Search Box
Select the typed item in the view
Restore Defaults
OK
Cancel
Use check boxes: enable this option to have a check box appear next to every item in a folder list.
Customise your notification icons: change the way that icons within the system tray behave.
Customize Notification
Click an icon behavior to change
Icon
Behavior
Current Items
Windows Customer Experience...
Windows Security Alerts
Microsoft Office Outlook
Windows Live Messenger - Not...
LightScribe Control Panel
People Near Me - Signed In
Windows Sidebar
HP Digital Imaging Monitor
Open &New Side Note
Sync Center
Napster
Pen flicks
Hide when inact
Show
Hide
Virtual Memory
Automatically manage paging file size for all drives
Paging file size for each drive
Drive [Volume Label]
Paging File Size (MB)
C:
768 - 1536
D: [HP_RECOVERY]
None
G: [NETWORK]
None
Selected drive: C:
Space available: 39243 MB
Custom size:
Initial size (MB): 768
Maximum size (MB): 1536
System managed size
No paging file
Total paging file size for all drives
Minimum allowed: 16 MB
Recommended: 1531 MB
Currently allocated: 1321 MB
OK
Vista performance tweak: set your PC's virtual memory to be 1.5 times your physical memory.

the mouse. And if the phone rings in the middle of a complex selection then the whole thing goes to pot. Fortunately, there's a Vista feature that enables a check box next to each item in the list. To activate check boxes, go to 'Organise > Folder and Search Options'.

Choose the 'View' tab and scroll to the bottom of the list. There you'll see the option to 'Use Check Boxes To Select Items'. Put a tick against this option and press 'OK'. Now every item in the folder list will have an empty check box next to it. Place a tick in the box if you wish to select the item. Use the single check box at the top of the list to select or deselect all items.

WINDOWS

CUSTOMISE YOUR NOTIFICATION ICONS

The notification area — or 'Systray' — is the area just to the left of the minimised clock on the right of the taskbar. Services running in the background can use this area to announce themselves or attract your attention, which is either a good thing or a bad thing. It's good if you want to pay close attention to the whims of your background services, but bad if you just want to get on with your day. Fortunately, there's a new Vista service that lets the user control how services behave when in the notification area.

This feature is called 'Customise Notification Icons' and is found in the right-click menu when the cursor is over any blank space in the notification area. Each service or application that's able to access the notification area is listed inside the resulting dialog box. To change the behaviour of any item, click on the item and choose an option from the dropdown menu. Behaviour can be returned to the original factory setting by choosing 'Default Settings' from within the menu.

LINUX

BACKUP VITAL FILES

By saving a handful of vital system files, you can repair a broken Linux installation quickly. While Linux is generally a very reliable OS, it's not invincible — one errant command as the root user can render your system unusable. Fortunately, Linux remains true to its Unix origins and the vast majority of system configuration data is stored in plain text files (and not a hulking great binary Registry — naming no names, of course). Not only does this make life easier for administrators, but it also helps you to make quick backups. Here's a list of the most important files on a typical Linux installation. Save these to external media and, if your box won't boot correctly, you can consult them to identify the problem.

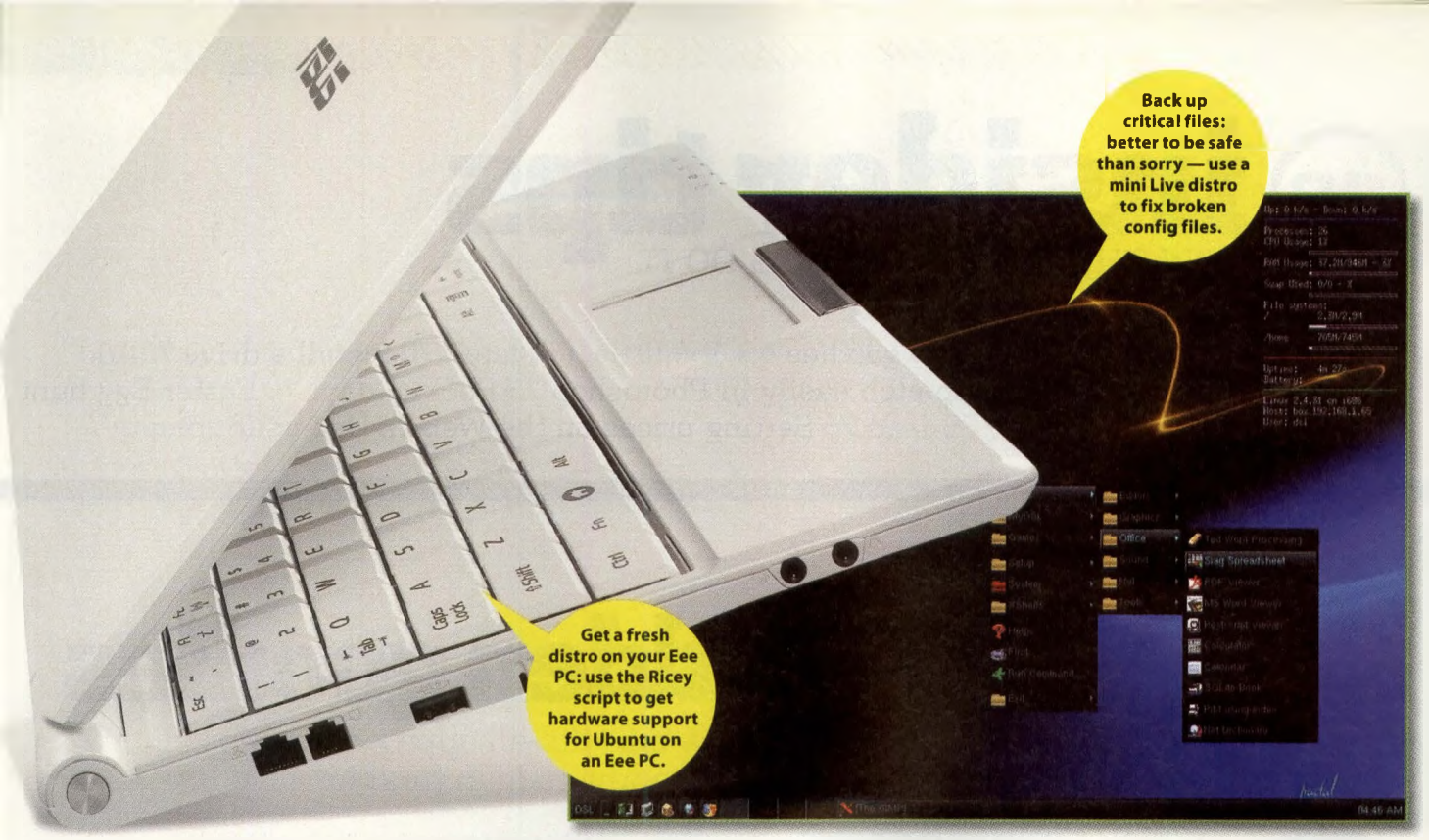
- **/boot/grub/menu.lst** — Settings for the GRUB bootloader. This contains entries for every operating system on your PC, so if your distro stops running (or you can't start Windows on a dual-boot system) then check this.
- **/etc/passwd and /etc/group** — These contain the user account and group information for the system. If you can't log in, the problem is likely to lie in these files.
- **/etc/fstab** — The file system table. This vital file determines which hard drive partitions are to be used in Linux for the root (/) partition, swap space and so on. If this file gets corrupted, you may not be able to (easily) access your data on any native Linux or Windows partitions.
- **/etc/X11/xorg.conf** — If you're running a GUI, this file contains settings for the X Window System, which is the base graphical layer in Linux. If your distro is only booting to the command line or with the wrong screen resolution, restore this file. If your distro completely fails to boot, you won't be able to go in and restore these files to their working copies. But by booting a small Live distro such as Damn Small Linux (**www.damnsmalllinux.org**), you can freely access your Linux partitions and copy the old files back.

WINDOWS

WHEN USING VISTA AS A SERVER, TRY THIS TO MAXIMISE POWER

Windows Vista includes a number of options for tuning performance to the task in hand. It can be set to prioritise foreground tasks (programs) or background tasks (services) — useful if one of your computers is a print or file server that's rarely used for foreground activities. Right-click the Computer item in the Start menu and choose 'Properties'. In the dialog, choose the 'Advanced System Settings' link in the upper right and respond to the UAC prompt.

Now choose the 'Advanced' tab in Performance Options. Here you can tell Vista to prioritise foreground tasks or background services. While you're here, check that your Virtual Memory settings are correct. Microsoft recommends that you set the maximum amount of virtual memory to be 1.5 times the physical


Back up critical files: better to be safe than sorry — use a mini Live distro to fix broken config files.
Get a fresh distro on your Eee PC: use the Ricey script to get hardware support for Ubuntu on an Eee PC.

memory in your computer. My computer has 1GB of physical memory, so I choose 736MB of minimum space and 1,536MB of maximum space. This allows the paging size to increase with the demands of the system to a maximum of 1.5GB.

LINUX

INSTALL A REAL DISTRO ON YOUR EEE PC

For light use, the standard Xandros installation that comes with the ASUS Eee PC does a sterling job. But if you want to run a more mainstream distribution such as Ubuntu, you may find that the Eee's hardware isn't well supported out-of-the-box. Fortunately, you can run a script that automates the job of downloading and installing drivers to make your distro fully Eee-compatible. Install Ubuntu 8.04 on your Eee (via an external CD drive, for example) and then download the file from **http://eee.ricey.co.uk** and execute it. You'll be prompted for your password so that the script can install drivers as root (the administrator). Then reboot to get Wi-Fi support, on-screen displays and more.

INTERNET

DEACTIVATE THE FIREFOX 3 DOWNLOAD CHECKER

Q Ever since upgrading my browser to Firefox 3, I've been annoyed by the amount of time that it takes to virus-check my downloads. I already have AVG installed, so is there any way to stop Firefox from duplicating the virus check?

Natasha Holden

A Although Firefox 3 is an excellent upgrade, it's true that the new virus checker is painfully slow. Even though you can access files during the checking process, it gets in the way — particularly when you already have virus-checking software.

Here's how you disable it. Type 'about:config' into the address bar, then click 'I'll be careful, I promise!'. Now type 'browser.download.manager.scanWhenDone' into the Filter bar. Double-click on the single line to toggle its value from true to false. Now restart Firefox for check-free downloads.

INTERNET

LONG DISTANCE ACCESS TO YOUR HOME CONNECTION

Q I want to be able to access my paid-for cable internet service wirelessly up to 100km away from my home. Why should I have to sign up to a wireless broadband plan when I have cable? Why can't I buy a product that I can connect to my laptop to access my cable connections service back home for free? I understand about Wi-Fi hotspots but there are very few where I need them.

Terry Humphries

A There is no reason why you cannot access your cable internet wirelessly up to 100km away from home. The only problem you may have with this is the huge cost of making it happen, a small mesh of towers, antennas and the costs of the radio sites, and the costs of the radio licences for transmitters and the microwave link equipment. Having costed radio sites in a design job years ago I suspect you will have little or no change out of $20 million to make it happen. Far cheaper to use a wireless broadband offering. Even the ones that are bad value in excess charges will be cheap in comparison.

Eddie (apcmag.com/forums)

WINDOWS

VISTA MANUAL DEFRAGMENTATION

Disk defragmentation within Windows Vista is managed automatically with a scheduled task. This is a low-priority task which will only run when the computer is idle. For Vista owners, the automated task replaces the need to remember to manually defrag. Advanced Vista users requiring a configurable defrag tool can use the Vista command line utility, defrag. The defrag utility runs as a high-priority task and will defragment blocks over 64MB — and can also be used to produce defragmentation reports. Defrag has a few options as follows:

- 'C:\defrag c: -a –v' — This produces a defragmentation report for the C drive in verbose mode. Remove –v to produce a concise report.
- 'C:\defrag c: -r' — This instructs Vista to perform a defragmentation of all files except files over 64MB.
- 'C:\defrag c: -w' — This instructs Vista to perform a complete defragmentation, including files and fragments over 64MB.

68 insider tips

HOW THE PROFESSIONALS DO IT

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WINDOWS VIEW

Vista's hidden goodies

Windows tends to have a one-size-fits-all approach to the OS. Here are some tips to turn on some hidden functionality.

APC EXPERT

JAMES BANNAN

James Bannan is a systems manager at St Leonard's College (Vic) and *APC*'s resident Windows expert.

Windows Vista uses a very modular structure for installing application packages. When you install Vista, based on the version you're installing and the hardware platform it detects (eg. desktop or notebook), it automatically installs certain packages and avoids others.

But the applications that get left off are still available to you to install, to increase the functionality of your Vista system. To see what's available, go to Start > Control Panel > Programs and Features. Then select 'Turn Windows features on or off' in the left-hand panel.

This displays a list of all the features available — some will be already installed and others are available for installation. Some features, like Remote Server Administration Tools are available once a standalone package has been installed.

Many of the features will only be of interest to users in particular scenarios. For example, you can configure a Vista machine to connect to UNIX-based file and print servers and even manage UNIX applications in a locally-installed subsystem, but not everyone needs this functionality. For IT Pros, more popular choices would be telnet client and server support and Windows PowerShell (and perhaps some games!).

One feature which should be of interest to every user is the Tablet PC Optional Components package. This is available regardless of whether you have a tablet PC, and it adds functionality like the Snipping Tool for grabbing quick screenshots, Windows Journal and handwriting recognition. It also adds checkbox selection in Windows Explorer, which is a particularly useful tool for one-handed file selection — to enable this once the package has been installed, go into Windows Explorer, press Alt+T to get the Tools menu, select Folder Options > View, scroll to the bottom of the Advanced settings list and tick 'Use check boxes to select items'. You can still use all the standard file and folder selection methods, but now you've got an extra option to make life a bit easier.

Tablet functionality can be yours — even if you don't have a Tablet PC!

If you're concerned with power usage, either because you need to maximise battery life or you're interested in reducing power consumption, Vista lets you fine-tune many aspects of your system's default behaviour. Go to Start > Control Panel > Power Options. Here there are three basic pre-defined behaviour patterns — Balanced, Power Saver and High Performance. These aren't customised for your system but rather offer a one-size-fits-all approach to power conversation. Regardless of the plan you choose, you can customise it by clicking 'Change plan settings' and then 'Change advanced power settings'.

Using the drop-down list you can change the advanced settings for any of the three plans. This is useful for when you want to switch between plans depending on your current pattern of usage. You can change settings such as when the hard drives should turn off, which is a big notebook battery saver and what action the system should take when you press the power button (including changing the default Start Menu button behaviour from Sleep to Shut Down).

Finally, if you want to tweak Vista's desktop appearance, and perhaps claw back some system memory, go Start > Control Panel > System, and then select 'Advanced system properties'. Go to the Advanced tab and, in the Performance section, click Settings. Here you can modify settings that affect how the Vista desktop renders and how various visual elements appear. To claw back a fair chunk of system memory and improve desktop responsiveness, select 'Adjust for best performance'. The desktop won't look particularly attractive, but it will feel much faster.

X-Fi support is finally here for Linux users — but why did it take so long?

LINUX WINDOW

Too little, too late?

A long-awaited goal of Linux users — support for Creative's X-Fi sound card — is now realised.

When it was released in 2005, Creative's X-Fi sound card was generally regarded as the pinnacle of audio for a PC, offering high-quality (*cough* *eXtreme Fidelity* *cough*) output bundled with industry-supported features like EAX (Environmental Audio Extensions). There were alternatives of course, and some competition, but overall it was the card to get. If you used Windows.

Creative didn't make any Linux drivers available, and didn't release any specifications to allow open-source developers to write them either. Despite the fact that previous Creative cards were supported by the Linux kernel, the X-Fi was effectively dead to the platform.

Always a slow company to adapt to change, often behind the times even for its Windows drivers, to its credit the company recognised that Linux users buy hardware the same as Windows users and announced it would, in fact, support Linux at the end of 2006. It was a nice gesture, but the drivers didn't materialise until the end of 2007, two years after the product was released, and then only as beta and in a binary-only format — making it impossible for kernel developers to integrate or update it. Worse, they were built for a very specific kernel configuration, and only for 64-bit, leading to a backlash by customers who had purchased the card and were still waiting for support under Linux.

Fast-forward to 2008 and, after numerous buggy binary releases, Creative's X-Fi sound card still remains inert for Linux users except for those willing to jump through hoops trying to get the beta drivers to work, if they work at all.

Until now, that is.

Perhaps it's three years of customers asking for proper drivers, or perhaps it's the changing landscape for PC audio — where onboard in-built sound now rivals that of cards like the X-Fi — and the pressure of competition, but the company recently announced it would give up releasing incomplete binary-only drivers and do what its customers have wanted it to do from the start: release the source under the GPL.

As someone who has an X-Fi and has been unable to use it under Linux — when every other card under the sun is supported (over 100 vendors are supported) — it's both fantastic news and a case of wondering why it took so long for the company to get a clue. Three years of using it only under Windows — setting up dual-speaker configurations with on-board sound when in Linux — is a lot of hassle to put your customers through. The X-Fi was the last Creative product I purchased (of all its products) for this reason, which is three years of lost profit from me — and every other Linux user who feels the same.

And, ironically, even now it's not Creative that's going to get the drivers to work, fix and improve them, and keep them up-to-date — open-source developers will be doing this. Right from the beginning, Creative didn't even have to *write* the drivers, it only had to *open* the card and allow others to do it.

Purely from the interest of the bottom line, it didn't make any sense back then, and it doesn't make any sense now, but at least it's a chapter that can be closed. And hopefully as a shining example of how not to shoot yourself in the foot with an entire (and not insignificant) customer base.

If you're used to rolling your own kernels, the X-Fi source driver can be compiled into a loadable module that works with your distribution by following the instructions included in the archive. Head to the download section of **www.creative.com** to grab it, or wait until it becomes integrated into the kernel via ALSA. apc

APC EXPERT

ASHTON MILLS

Editor of the Linux Pocketbooks series, and now with *CHOICE magazine*, Ashton has been a tech journo for over 13 years, including five years with *APC*.

HARD DRIVE PERFORMANCE

A hard drive for a fast system

Having a fast single drive offers great performance, but what makes the biggest difference so you can beat your buddies?

APC EXPERT

DORIAN BUSSENIUS

Dorian Bussenius has 15 years experience in PC hardware and assembly. He is an expert in SOHO and gaming system design and performance with Gamedude computers in Brisbane. **www.gamedude.com.au**

In many gaming systems you will see expensive video cards and CPUs used to get the best performance out of the latest performance-hungry games, but the hard drive is often overlooked. They are critical to getting faster overall speed and, more importantly, blistering load times in games.

Platter density and RPM are the first things to look at. Manufacturers are always creating a way to pack more data into smaller spaces. Look for a drive that has the highest platter density, since this will not only provide faster general performance but the drive will run cooler too.

The benchmark for hard drive read speed is 7,200rpm and only few drives (such as Western Digital's VelociRaptor) reach 10,000rpm. Faster RPM reduces seek times but can run hotter and needs better cooling.

SINGLE VS MULTIPLE DRIVES

A single drive is the most common setup for most gaming systems, but, while adequate, you will never get exciting performance, and under heavy use it will show its weaknesses especially in multiple I/O operations. Multiple drives with RAID are better. The main RAID setups are:

- **RAID 0 (stripe)** is a way of splitting data over two or more drives to use the combined speed of all drives at the same time. This is a very fast way of getting data from your hard drives and getting you into the game faster. The drawback to this system is, when a hard drive fails in this setup, you will lose all the data on all drives, because parts of the file system will be missing. Two drives are good; four is even better!

- **RAID 1 (mirror)** is a way of making a 'clone' of a single hard drive or a RAID stripe (0+1). You will need even amounts of hard drive for this and you will not have access to the mirrored drive's space, as the second drive is an exact copy of the first. This is good if you need to back up valuable data but is slower than a single drive for performance, and therefore not recommended for gaming.

- **RAID 5** is stripe plus parity — basically it splits data over three or more hard drives and also has a parity check system so that it can rebuild any data lost in the event that a hard drive fails. You will not get the same performance gains as RAID 0, but if a hard drive fails you won't lose all your data — and it is still faster than a single drive.

SO WHAT'S THE BEST SETUP?

What I recommend is a single drive for the OS or boot drive and additional drives with either a 2- or 4-way stripe. This way your OS can read/write to the single drive as needed and your RAID array takes care of all your game data. Of course, there is no data redundancy, but if you're looking at getting performance for gaming, I don't think you will care — and I am sure it's all backed up anyway ;) apc

Western Digital's 10,000rpm VelociRaptor with heatsink.

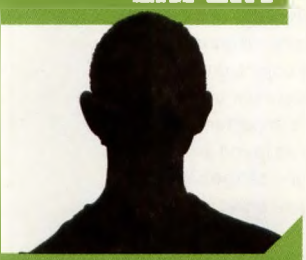
A SINGLE DRIVE IS MOST COMMON, MULTIPLE DRIVES WITH RAID ARE BETTER.

ESSENTIAL TOOLS

Ditch Explorer and find your files faster

You owe it to yourself to dump Windows Explorer and use the FreeCommander replacement for Vista and XP.

APC EXPERT



MIKE WILLIAMS

Mike Williams is *APC's* special correspondent in the UK. He first became interested in file management alternatives after discovering the nightmare that was File Manager in Windows 3.1.

If Windows Explorer is your only file management option, you're using a system that is slow, inefficient and — even with the Windows Vista facelift — still lacking many basic file management features.

Fortunately, there's a very easy solution. Give up using Explorer for heavy-duty file manipulation tasks and try FreeCommander (**www.freecommander.com**) instead. You'll get a tabbed, dual-pane interface for easier browsing, time-saving file selection features, a capable file viewer and a built-in FTP client, plus many more tools to help speed up even the most complex file management tasks.

GETTING STARTED

The first task of any good file manager is to speed up access to your most commonly used files and folders. FreeCommander does this in several ways.

First, unlike Explorer, it provides considerable control over the folders displayed when it opens. Choose 'Start with the following folder' and you can tell FreeCommander to display any folder you like in the left panel as well as a different one in the right. If you regularly work with the contents of two particular folders, this feature alone can save you a great deal of time.

The second benefit comes from FreeCommander's tabbed interface. For example, if you frequently need to access C:\ MyData, press Ctrl+T to open a new tab and browse to that folder to make it available at a click from now on. You can even lock the tab to prevent others pointing it to another location (right-click the tab and choose an appropriate Lock option).

If that's not enough, you can always add the currently selected folder to a list of Favourites (click 'Folder > Favourites') or choose a recently accessed folder from your History (press Alt+Down). There are many ways to reach a particular destination, and that's when the real fun begins.

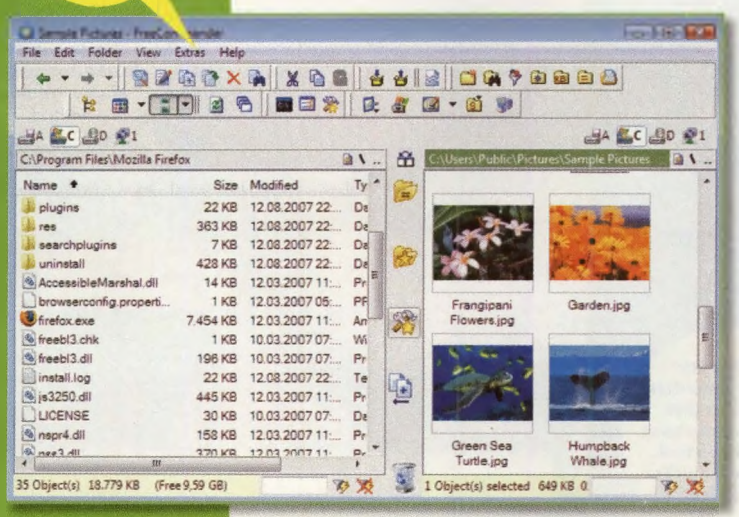
FILE SELECTION

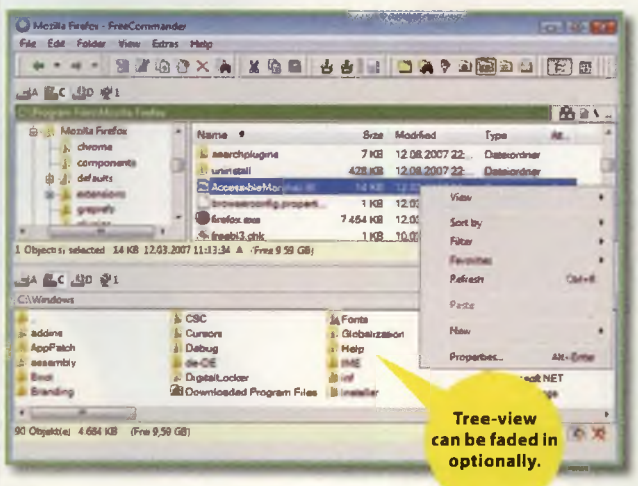
Open a folder and you'll probably want to select a number of files. FreeCommander supports all of the regular Explorer selection techniques (Ctrl+click to select multiple files, Shift+click to select a range, Ctrl+A to choose everything and so on) but it also has a number of useful options itself.

Let's suppose you want to select all of the JPEG images in a folder. In Explorer you'll have to scroll down the list, Ctrl+clicking on each file in turn, hoping that you don't miss one. Or you might click the 'Type' column header to sort by file type, although that's inconvenient if you prefer the current sort order. In FreeCommander all you need do is click on one JPEG file, then press Alt+Num Plus to select everything else in the folder with the same extension. Easy. FreeCommander also allows more complicated selection requirements for you to explore.

MORE TIME-SAVING TOOLS

Once your files are selected, you can make use of additional features that may save you a lot of time and effort. There is a multiple files renaming tool, for instance. There's more to enjoy in FreeCommander too, like the folder compare features, the secure file-wiping tool and the ability to tweak file attributes. apc





BEATING PHOTOSHOP INTO SUBMISSION

How to deep-etch easily in Photoshop

We think we've found the simplest way to remove the background from an image when using Photoshop.

APC EXPERT

LEIGH D. STARK

Leigh D. Stark has an obsession for all things with the word "photo" in them and is rarely caught without a hat. He can often be seen teaching photography and has an almost unhealthy obsession with technology.

A colleague of mine recently asked me if there was any quick and easy way to deep etch in Photoshop.

"No," I replied sternly. "Repeat after me: there is no easy way to deep etch in Photoshop." His look now saddened, so I told him of a technique I'd been using to great effect. You've probably used it before with little things, but the Magnet Marquee tool can be employed for a similar deep etching function with a hell of a lot less fuss than drawing Bezier curves and pen points around an object.

To grab this tool in Photoshop, hit the Lasso tool for a second and, as the menu drops down, select the lasso tool that has a little magnet attached to it.

This nifty tool is designed to pick up on the edges of everything inside your image. Contrasting sides and defined edges are what makes this tool valuable and, depending on just how well laid out your image is that you're working from, the Tolerance counter that you can modify at the top of the screen will also determine just how much leeway you're planning on giving yourself.

You're also going to want to throw in a number for feathering, say between 1-5, depending on the size of your original image. This number will blur the edges as we draw around your object. If you're unsure how much you want to feather at this time, ignore this step and come back to it.

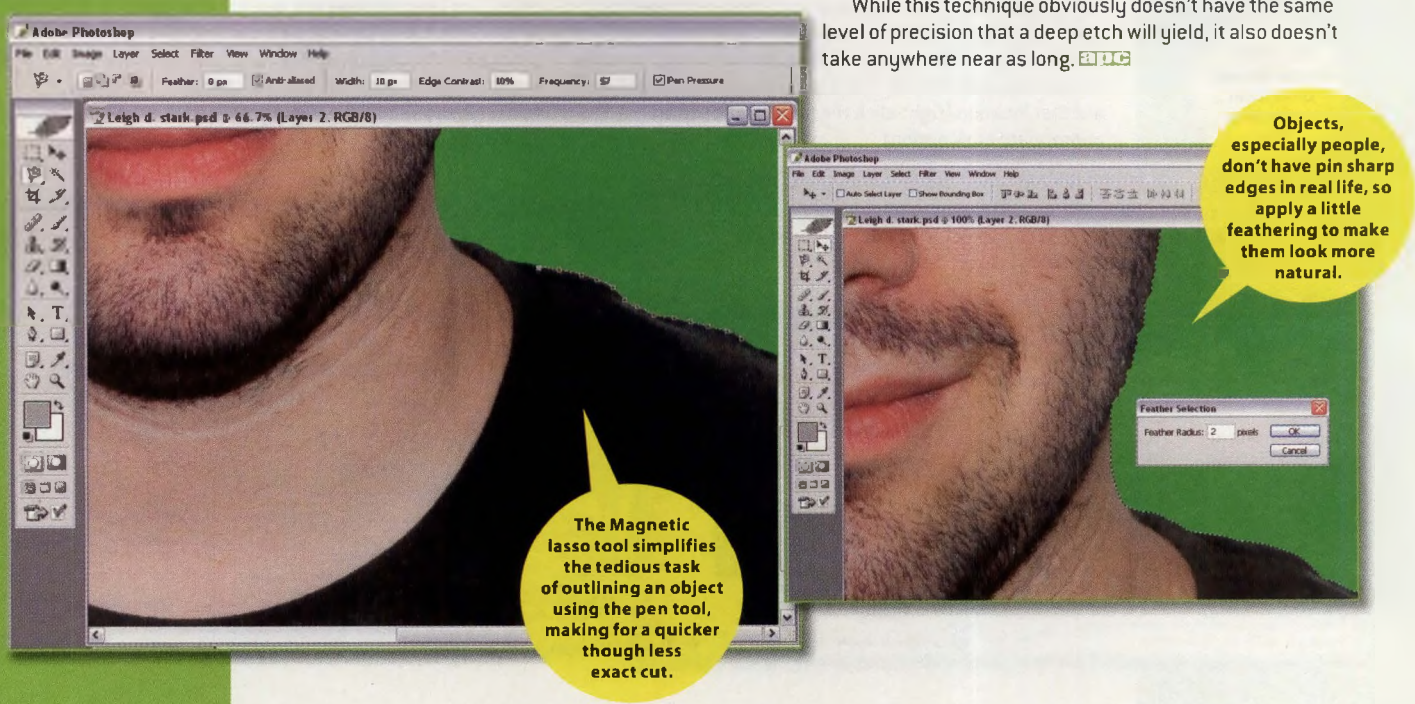
Once you've got yourself set up, zoom in to around 100-300% of your image and start drawing with the Magnet Lasso. You'll see that as you trace the edge of the object, magnets are setting up pen points around your object. Depending on the complexity of the object, you'll find that the points laid out by the magnet might not be in the exactly right place. In situations like this, it's important to finish the lasso you've already started. If you've found areas that didn't perform quite up to scratch, you can go back and, while holding the Shift key, add to your lasso with further points as you click.

Once you've got your selection all done, it's time to do some cutting. If you didn't feather at the beginning, it's now time to hit Feather (located under "Select" and then "Modify"). Enter a small number like 1 or 2 and the feather will soften all those crags made by the magnet lasso.

Once you're done with that, select Copy and move your image over to your new background. If you've softened too much, either paste another instance directly on top or go back to your original image's history and pull yourself back to before you feathered.

If you're moving it over to a clean background, adding just a hint of drop shadow in the layer can go a long way to making it look just that much better.

While this technique obviously doesn't have the same level of precision that a deep etch will yield, it also doesn't take anywhere near as long.


Adobe Photoshop
Leigh d. stark.psd @ 66.7% (Layer 2, RGB/8)
The Magnetic lasso tool simplifies the tedious task of outlining an object using the pen tool, making for a quicker though less exact cut.
Objects, especially people, don't have pin sharp edges in real life, so apply a little feathering to make them look more natural.
Feather Selection
Feather Radius:
OK
Cancel

APC EXPERT

CHRIS IONA

Chris has been with Internode since 2003, and is the Technical Lead for Chumby. As a senior member of the Content Services Group, he leads development of innovative web-based applications.

COMPETITION

Develop for Chumby

You don't have to know programming to develop software for Chumby devices — just Flash.

A Chumby is little device that connects to the net via Wi-Fi and displays software widgets on its little screen. The widgets come with a variety of content and functionality and are written specially for the Chumby using Flash (Flash Lite 3 version). If you understand the very basics of Flash, you can build a simple Chumby widget in a day. And we're not talking dull widgets either.

Chumbys offer the opportunity to create some fun stuff. For example, a Chumby has an accelerometer built in, allowing you to be more creative than if you were developing widgets for a web browser.

You don't need a Chumby to create widgets for it. You can use the Virtual Chumby at **www.chumby.com**. A wiki for Chumby developers is at **www.wiki.chumby.com**. Flash tutorials are available at **www.w3schools.com/Flash/default.asp** and **www.flashkit.com/tutorials**.

COMPETITION

APC and Internode have joined forces to create a Chumby Widgets competition. There are two categories:

- **Highest-rated widget:** the highest-rated widget entered in the competition as seen on the Chumby Widget Guide.
- **Simon Hackett's pick:** the most creative Australian-themed entry as judged by Simon Hackett, Internode's Managing Director.

The Major Prize will be awarded to the Highest-rated Widget and consists of your very own Chumby, a copy of Adobe Flash CS4 Professional and an $800 credit towards Internode services. The consolation prize pack, which also includes a Chumby and $200 credit towards Internode services, will be awarded to Simon Hackett's Pick.

TERMS AND CONDITIONS

- Widgets must have an Australian flavour or content, and be publicly available on **www.chumby.com**.
- Widgets must be registered at **chumby.on.net** in order to be eligible.
- Full terms available on **chumby.on.net**.

The competition closes on January 9 2009. Winners will be announced on January 16 2009.

Start developing!

APC EXPERT

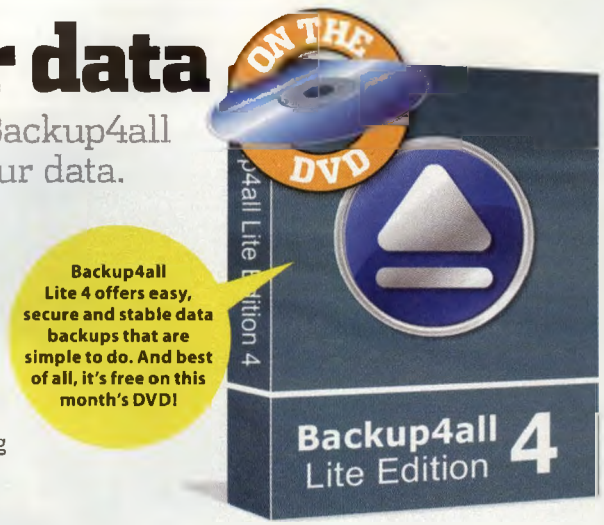
PETER DOCKRILL

Peter Dockrill is *APC*'s DVD Editor. He also edits the Watchdog and Chip Chat columns, in addition to writing occasional reviews and sub-editing the magazine. He further contributes to *Money Magazine*.

DATA BACKUP

Back up your data

Use our cover disc software, Backup4all Lite, to back up and protect your data.



Backup4all Lite 4 offers easy, secure and stable data backups that are simple to do. And best of all, it's free on this month's DVD!

These days, there's a lot of marketing hype about everybody's supposed 'digital life'. And, the thing is, it's not just a line used to sell external hard drives. Between our digital photo albums, music collections, movie libraries, email inboxes and even our internet bookmarks (not to mention important personal or work documents), users have a heck of a lot at stake in the event of data loss. Luckily for you, however, this month's *APC* cover DVD features a free copy of Backup4all Lite 4, an award-winning and easy-to-use commercial backup program.

Just install the program off the disc, then go to Start > Programs > Backup4all Lite 4 and click on 'Get free registration key'. Enter a name and valid email address to register the program. Attach an external hard drive (or memory key) to your PC, and when you launch the program, the Getting Started wizard is launched. From here it's a cinch: just hit 'Backup' to create or run backup jobs, then select 'New' and follow the prompts. Once you've decided what you want to back up, you can also schedule automatic backups (recommended) and utilise a whole host of advanced settings (password protection, data compression etc.) to get things just how you want them.

Of course, in events like theft or house fire, an external hard drive solution may not be enough to protect your data. For total security (and peace of mind), you'd be advised to also take a look at online backup sites, of which there are many (with offerings ranging from free to commercial). APC

FUN STUFF

Easter egg hunt

Finds the secrets hidden in supposedly serious software.

Programmers often get bored. That's why Easter eggs were born. They're those odd little snippets of code that really shouldn't be there, hidden so well that only the deeply committed can find them. Type in a keyphrase or click on a specific spot and you just might find something squirrelled away by the developers for you to uncover...

CLASSIC EASTER EGGS

There's a flight simulator in Google Earth that initially started off as an Easter egg (Ctrl+Alt+A, or Cmd+Option+A on the Mac). You can use it to fly over 3D maps and even land on any flat area that you fancy. For another Google Easter egg, try typing 'Google Easter eggs' into the search box on the Google homepage, then click the 'I'm feeling lucky' button for an Easter-themed example. The Google folk also have a thing about pi. They've even made their share release the number's first eight decimal digits. If you're using the iGoogle homepage, you'll find another pi-related Easter egg. Set your PC's clock to pi time (03.14am) to see animations appear in your page's backdrop.

The hidden emoticons in Skype's chat tools probably won't be apparent to everyone — but if you find yourself in a conversation where you're being told too much information, try typing '(tmi)' and see what happens.

If hidden games are more your thing, there's a copy of Tetris in the uTorrent BitTorrent client, and Space Invaders is hidden inside OpenOffice. To play, open a new spreadsheet and add this formula to a cell: '=game()'. The cell will be filled with the text 'Say what?'. In an adjacent cell, type '=GAME("StarWars")' for a quick bout of mindless alien destruction.

Google's new browser, Chrome, also includes an Easter egg — but only if you're using Windows XP. It's triggered by typing an 'about' request into the toolbar — type 'about: Internet' to launch the Windows Pipes screensaver inside the browser. Vista users don't have the screensaver, so instead they get a message telling them that the tubes are clogged.

EASTER EGG ON THEIR FACES

Some Easter eggs end up costing programmers their jobs, while others cost software companies large sums of money. Rockstar suffered from arguably the most controversial Easter egg in history, when it cut off the Hot Coffee mini-game egg from Grand Theft Auto: San Andreas entirely but left the assets disc. It proved a simple matter for hackers to get their hands on the mini-game, and the more explicit sex content caused Rockstar a lot of problems.

Another example is the game SimCopter, which was released in 1996. One of the programmers, Jacques Servin, added an Easter egg that occasionally replaced the usual fireworks and bikini-clad girl 'mission complete' animation with kissing men in swimming trunks. This amused more than it offended but ended Servin's career at Maxis.

You can find Easter eggs in lots of places — not just software. Peter Jackson's *Lord of the Rings* films contain plenty of eggs. One on *The Fellowship of the Ring* DVD pulls up a spoof filmed for MTV, where Jack Black has the ring somewhere not safe for work. There's also a casino implosion hidden in *Ocean's 11*. [illegible]

> YOU CAN FIND EASTER EGGS IN LOTS OF PLACES — NOT JUST SOFTWARE

Up, up and away: Google Earth contains a hidden flight-sim Easter egg...

Grand Theft Auto: San Andreas caused a stir with its 'Hot Coffee' mini-game.

APC EXPERT

SIMON BISSON

Simon Bisson had too much time on his hands when he wrote this.

WEB DEV

Add an RSS feed

We show you how to add an RSS feed to your existing database-driven PHP web site (just like on apcmag.com).

APC EXPERT

AKASH MEHTA

Akash Mehta is a full-time student and web developer specialising in web 2.0.

RSS is simply a specification for using XML to syndicate frequently updated content. To begin, any content in our RSS feed needs to have a title, a brief description (which we can create), a unique URL and a publication date.

Let's say we currently have an articles table in our database. This table has columns id, title, content and publishdate. We also know that we can view any of these articles by visiting http://example.com/view/[article id]. To construct our feed, we'll fetch the 10 latest articles and display them from newest to oldest.

So let's get started. Open up your favourite PHP editor, and add in the following:

```
<?php
header("Content-Type: application/rss+xml");
echo '<?xml version="1.0"?>';
```

The "Content-Type" header tells the news reader that this particular page is an RSS feed; we also send over our opening XML declaration tag. Next, we need to open the actual "channel" tag, for the information in this feed. You can add some handy information about your site in this section. Add this to the end of the file:

```
?>
<rss version="2.0">
<channel>
<title>ACME Inc. Latest News</title>
<link>http://example.com/</link>
<description>All the latest news, direct from ACME Inc.</
description>
```

There's a lot more information we can include — common tags include language, copyright, and lastBuildDate. These three tags are the only compulsory, however; for now, let's start displaying stories.

Let's assume you have a MySQL database at mysql://root:password@localhost/mycms, and we're fetching information from the articles table as above. Add this to the end of our PHP file:

```
<?php
mysql_connect("localhost","root","password");
mysql_select_db("mycms");
$stories = mysql_query("SELECT id,title,content,publishdat
e FROM articles ORDER BY publishdate DESC LIMIT 10");
```

When we get the results of that query, we have enough information to construct our RSS feed. Each story has four tags — title, link, description and pubDate, and it's the latter two that need some thought. For description, we shouldn't list our entire article — just the first 50 words or so. Similarly, you could have all sorts of formats for your publishdate field, but RSS specifies format. There's also guid, a unique permalink — usually the same as link.

Here, we'll assume your publishdate field is a Unix timestamp — that is, the output from the time() function. If it isn't, however, you can easily make one on the fly with strtotime(). With that in mind, add this code in:

```
while ($item = mysql_fetch_array($stories)) {
 $pubdate = date("D, d M Y H:i:s T", $item['publishdate']);
 if (strlen($item['content']) > 100) {
  $item['content'] = substr($item['content'],0,100) . '...';
 }
?>
<item>
<title><?=htmlentities($item['title'])?></title>
<link>http://example.com/view/<?=$item['id']?></link>
<guid>http://example.com/view/<?=$item['id']?></guid>
<description><?=htmlentities($item['content'])?></
description>
<pubDate><?=$pubdate?></pubDate>
</item>
<?php
}
?>
```

We use date() to construct our publish date, based on the publishdate field, the Unix timestamp. Next, if there are more than 100 characters in the article, trim it using substr(). We run the title and content fields through htmlentities() to encode < and > symbols so that they don't confuse the XML parser. Finally, we close some tags:

```
</channel>
</rss>
```

And we're done! Upload it to your web server, make sure you configure the database access details and change the mysql_query() query to suit your existing content table. Point your web browser at the feed, and you can now link your readers to your new RSS feed. Many web browsers support an RSS feed link in the page metadata — consider adding the following inside your head tag:

```
<link rel="alternate" type="application/rss+xml"
href="feed.rss" title="RSS Feed">
```

Web browsers will then show a "Subscribe" button or an "RSS" icon within the chrome, allowing the user to easily view the feed and add it to their feed reader.

Want to learn more about RSS? Check out the specification along with a handy feed validator, available at **http://tinyurl.com/4sf27h**.

ECOMMERCE

Setting prices on the web

If you run an e-commerce site, pricing for the web is a challenge. Here are some tips on strategies from an e-commerce expert.

APC EXPERT

LUKE AMERY

Luke Amery is a web technologist who works on shopping cart software. He is the technical director of On Technology, Australia's leading e-commerce development company.

If you sell products on the web, publishing prices in such a level playing field sets up a fertile ground for the price wars. Shopbot highlights this fairly easily. If I want a Canon Digital IXUS 80IS I might do a search which shows a price range from $224.90 to $430. This is good for consumers, but not so good for merchants.

It goes to show that there are two broad strategies for selling online. You can either sell commodities, which means trading on price and hoping for volume, or trading on niche, which means finding something unique.

In the unique case, fewer people will want what you have. This means there is more uncertainty when starting out but at least there is a level of control over the price. When starting out on an e-commerce venture, it is critical to know which camp you fall into, because the only way to trade on volume is to hold stock and lots of it. That obviously implies a significant outlay, with the risk you can't sell everything you hold.

However, not everything is as it seems. There are variables at play here. The biggest of which is freight. Consider it the online version of the unit-pricing conundrum at the grocery store. In our IXUS example, the first link is to Digital Fun Stuff.

They will sell you an IXUS 80 IS for $239, but when we reach the checkout we discover a $15.95 freight charge. MegaBuy is selling the same thing for a ticket price of $249.95 (which doesn't match up with what they are quoting in Shopbot — maybe a story for another day!) with a freight charge of $14.18. RYDA is next, coming in at $239.95 for ticket and $16.65 for freight. See the table below for the breakdown.

Digital Fun Stuff and RYDA seem to be doing the right thing here. But MegaBuy seems to have found a way to look cheap and skim a bit off the top.

I am not pointing this out to highlight the checking you could be doing as a consumer to find the "best" deal for you. I am pointing out that these games are played by retailers across all markets online. If you are in the business of selling goods online it is something that needs very careful consideration. On one hand, you do not want to leave yourself out of the running by trying to incorporate freight into the unit price of commodity goods. While it may leave a pleasant feeling for those that make it to the checkout and find "free freight", it will not be so exciting to find that not enough people are getting to checkout because the proposition is put out of the running too early.

With niche products it is unlikely people are buying in volume, and as the merchant is not competing solely on price it is much easier to take this approach, which in my opinion is the better way to go.

Getting people to the checkout is hard enough; taking away any objection (especially additional costs such as freight) is something that should be done if feasible.

So, if possible, build freight into the products to ease the flow through the checkout, and also try creative things like promotions that increase sales volumes that can be applied to freight.

SUPPLIER	SHOPBOT QUOTED PRICE	STORE TICKET PRICE	FREIGHT	TOTAL
Digital Fun Stuff	$239	$239	$15.95	$254.95
MegaBuy	$239.75	$249.45	$14.18	$264.13
RYDA	$239.95	$239.95	$16.65	$256.60

WINDOWS HOME SERVER

Use your domain

Nick Race explains how to use your own domain name with Windows Home Server.

APC EXPERT

NICK RACE

Nick Race is *APC*'s Technical Editor. Nick has been with *APC* Magazine since 2004. He's an avid enthusiast of Windows Home Server and the functionality it can bring to a home network with a minimum of effort. Nick also contributes to *Men's Style* and *Foxtel* magazines as a technology columnist. He doesn't own an iPhone.

Windows Home Server (WHS) is an extremely flexible system, once you scrape away at the user-friendly surface Microsoft has placed on top. As it's essentially a Windows Server 2003 installation with a number of upgrades, such as Drive Extender technology, a virtual storage pool that protects data and amalgamates your hard disk drives into a single large virtual drive, you can do many things people rely on "proper" installs of Server 2003 for, with close to the same reliability and performance.

One of the features of WHS is the ability to connect to the system over the internet, giving you access to files stored on the server, or, if you're running the right operating system on your networked home PCs (Vista Home Premium and Ultimate), it allows a desktop connection to the client PCs via a web browser. Further to that, a popular Add-in for WHS is Whiist, available from **www.andrewgrant.org/whiist**, adds an easy web site creation and management tool for WHS. So there are plenty of good reasons to get your WHS online and available on the internet.

Out of the box, Microsoft offers a dynamic DNS service, giving each installation of WHS a sub domain on homeserver.com. I initially configured my WHS with nicks.homeserver.com, allowing me to access my WHS by using it as a URL in a browser. The process is automated and is configured with a built-in wizard just after installation of WHS (covered in another How To on **apcpro.com.au**). But what if I want to use a different domain name? Something more personal, or offer services like mail or FTP?

REGISTER A DOMAIN

You begin by registering your chosen domain name with any number of domain registrars. I had already registered nickrace.net through GoDaddy.com for a different project, so I decided to use that. Once a domain is registered, it needs to point to an IP address. If you have a static IP address for your internet connection, then it's simply a case of adding the IP address into the zone file for your domain registrar. Your registrar will include help and information on how to do this on its web site.

Unfortunately, the majority of people don't have a static IP address for their home network. Each time you connect to the net, a new IP address is assigned from an available pool. This won't work for us, as each time it changes it's going to point visitors to a different PC and not our server. A service that's available to get around this is offered by a site called ZoneEdit.com. ZoneEdit provide a free service for home users, which allows you to easily change the IP address for a domain that a zone file points to, letting you update it when your allocated IP address changes.

Signing up to ZoneEdit and managing the IP address correlating to your domain is quite simple. Once you've registered with ZoneEdit and rented a domain name from a domain registrar, you need to change your Domain Name Server details with the registrar to use ZoneEdit's DNS servers as the "root" or authoritative servers for your domain. It involves logging in to your registrar's dashboard or web site and changing the domain name servers that are in control of your domain to ZoneEdit's domain name servers. Full help documentation is available from ZoneEdit to help you do this, and it's different for most registrars.

The changeover is an automated process, but unfortunately it can take a couple of days before you can proceed further and ZoneEdit allows you to make changes, so plan in advance.

At this point, we've got a Windows Home Server that's connected to the internet and a registered domain name with a DNS zone file managed by ZoneEdit.com. Next month, we'll be looking at how to put all the pieces together and host your own web site on Windows Home Server.

Master of your domain? You'll be able to register a domain name with a registrar.
A$3.14*
New .COMs
A$15.79* A$16.89*
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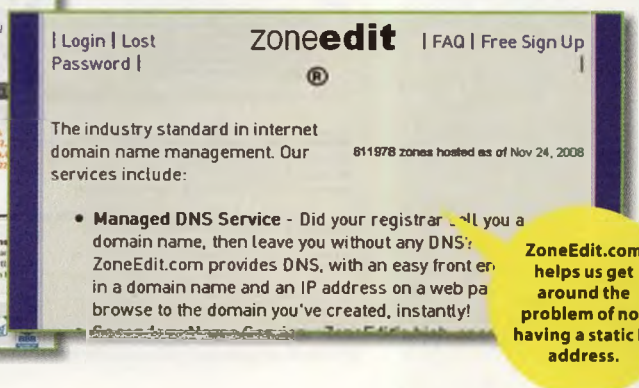
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OPEN SOURCE CHALLENGE

Optimise Intrepid

With the new Ubuntu 8.10 release, it's a good time to review some handy performance tips for Ubuntu, with Intrepid in mind.

1 INSTALL UPDATES

Especially for a clean install, before doing any other steps, install the latest fixes and updates. If you haven't done it already, configure your sources: click System > Administration > Software sources. Ensure 'main', 'universe', 'restricted', and 'multiverse' are ticked. Under the Updates tab, optionally check 'intrepid-proposed' and 'intrepid-backports'. Click Close and reload your local database. If there are updates to install, you'll be prompted by the update icon in the task bar, and you should go ahead and install them.

2 RESTRICTED DRIVERS

For best video performance, it's wise to install the restricted drivers for your cards. Ubuntu will prompt you to do this once, and won't bother you again if you elect not to. The procedure is simple enough, and the installer will take care of everything for you, with one caveat if you use an NVIDIA card — see 'Load NVIDIA settings' sidebox for more.

3 COMPUTER, NETWORK, TRASH

If you like the Windows paradigm of the Computer, Network and Trash icons on the desktop making them quick to access, you can add them like so: press Alt-F2 and type in 'gconf-editor'. Navigate to apps > nautilus > desktop. Tick the 'computer', 'network' and 'trash' icon visible check boxes. Note you can also simply drag Computer and Network to your desktop from the Places menu, but you need to use 'gconf-editor' to add Trash to the desktop.

4 PANEL APPLICATIONS

While on the look and functionality of the desktop, there are a range of handy panel applications you can use. Right-click on a panel and select 'Add to panel...' to add a Weather applet, the Deskbar search bar and the System Monitor. If you left-click on the System Monitor you'll get Gnome's equivalent of Ctrl-Alt-Delete in Windows, with a task list, resource graphs and diskspace usage. If you right-click on it and select Preferences you can add network and hard disk activity as well as increase the standard width (60 or 80 works well to give you a longer graph in the panel). Finally, you can drag applets anywhere on a panel by middle-click dragging, and you can even drag applets between top and bottom panels this way too.

5 APPEARANCE

There are some simple and quick tweaks to improve the look of Ubuntu. Click System > Preferences > Appearance followed by the Fonts tab. If you're using an LCD monitor, select Subpixel smoothing. Next click Theme and, for a simple improvement, click Customise followed by Human-Clearlooks under the Controls tab. Finally click the Icons tab and select Tangerine. See the sidebox 'Add more themes' for adding a wider variety of themes to play with.

6 TAILOR THE TERMINAL

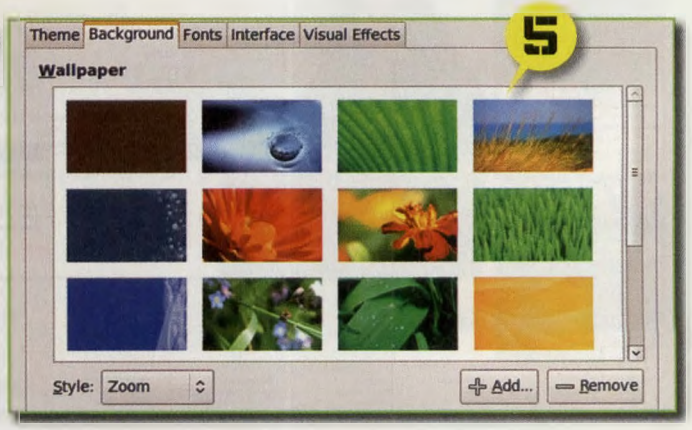
If not already, you may find yourself using the terminal on occasion, especially (for example) to implement some of the tips on these pages. Click Applications > Accessories > Terminal and make using the terminal easier like so:

Adjust colours — White on black is easier on the eyes, with a Terminal open click Edit > Profiles > Edit, click on the Colours tab, and set 'Built-in schemes' to 'White on black'.

Install midnight commander — Midnight commander makes browsing, copying, editing and managing files slick and fast. Install with 'apt-get install mc' and launch with 'mc'.

Disable F10 — With MC installed you'll find pressing F10 to quit it instead brings up the Menu shortcut for the terminal, which you don't need since the menus are visible

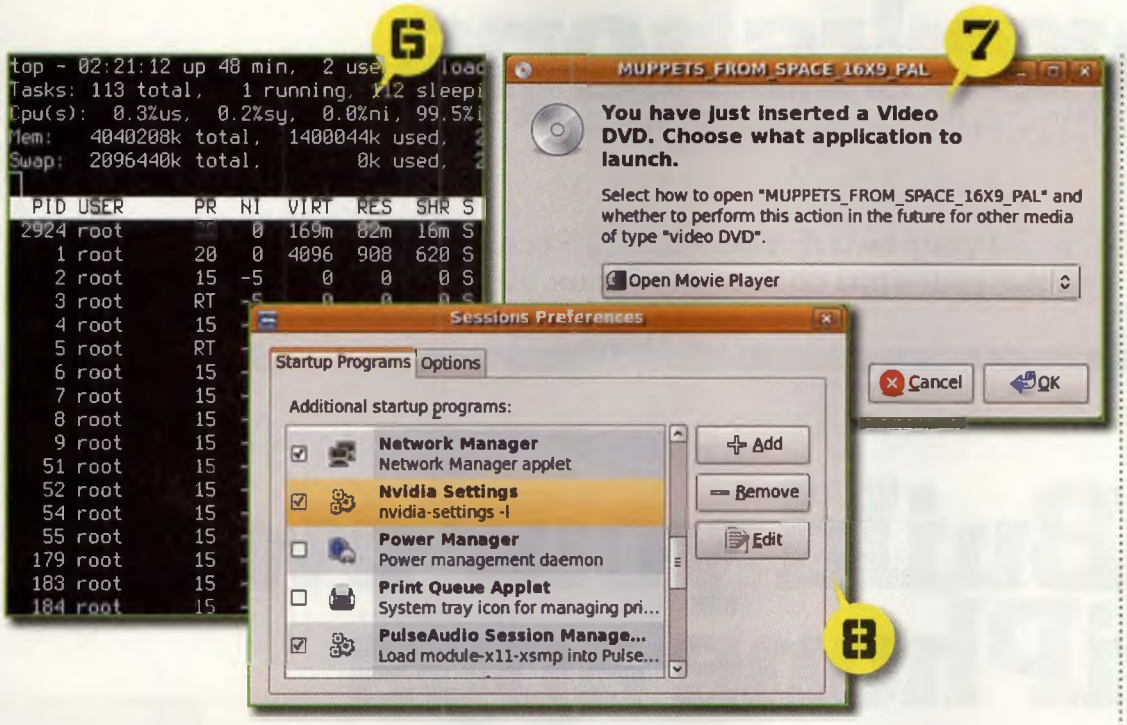
2
No proprietary drivers are in use on this system.
Proprietary drivers do not have public source code that Ubuntu developers are free to modify. They represent a risk to you because they are only available on the types of computer chosen by the manufacturer, and security updates to them depend solely on the responsiveness of the manufacturer. Ubuntu cannot fix or improve these drivers.
NVIDIA accelerated graphics driver (version 177) [Recommended]
NVIDIA accelerated graphics driver (version 177) [Recommended]
Tested by the Ubuntu developers
License: Proprietary
3D-accelerated proprietary graphics driver for NVIDIA cards.
This driver is required to fully utilise the 3D potential of NVIDIA graphics cards, as well as provide 2D acceleration of newer cards.
If you wish to enable desktop effects, this driver is required.
This driver is not activated
Activate
Help
Close



APC EXPERT

ASHTON MILLS

Editor of the Linux Pocketbook series, and now with *CHOICE Computer* magazine, Ashton has been a technology journalist for 13 years, including five years with *APC*. Ashton has been using Linux since Slackware came on floppies, and before that he was one of the three people in the world who used OS/2 (and loved it). Always ready to make the most of his PCs, he is constantly playing with Linux distributions and compiling the latest kernel. This is his idea of fun, and why we get him to write for *you*.



by default. Disable this behaviour and let MC capture it by clicking Edit > Keyboard Shortcuts and de-selecting the menu shortcut key.

Use the Terminus font — Run 'sudo apt-get install xfonts-terminus', then close the Terminal and start a new one and you'll find Terminus showing up as a font under Edit > Profiles > Edit in the font list. Set point size to taste.

7 MEDIBUNTU

Much as we don't like to say it, Ubuntu isn't complete without adding the extra support of the Medibuntu repository, which provides encrypted DVD playback. Fortunately, adding it and updating your system is simple. This is one of those examples of tasks that are quicker and easier to do from the command line, so open a Terminal and enter the following:

```
sudo wget http://www.medibuntu.org/sources.list.d/intrepid.list -O /etc/apt/sources.list.d/medibuntu.list
```

This adds the Medibuntu repositories. Next, update your local database and add the Medibuntu keyring for official authentication:

```
sudo apt-get update
sudo apt-get install medibuntu-keyring
```

Finally, update your local software database again:

```
sudo apt-get update
```

To add encrypted DVD playback and enhanced codec support, run:

```
sudo apt-get install libdvdcss2 w32codecs
```

If you use 64-bit Ubuntu, replace 'w32codecs' with 'w64codecs' instead. And that's it! You should now be able to play encrypted DVDs, and any other video or audio codecs not already installed will be found in Ubuntu's repositories, with the Totem media player prompting you to install them if it needs them. Of course, you can also install Mplayer, Xine and the cross-platform VLC as alternatives (and more fully featured) players in place of Totem.

8 TWEAK INTREPID

Finally, here are a few simple tweaks you can make to help improve the performance of Ubuntu.

Run a Profile pass — After you've got everything set up you can tell Ubuntu to re-profile the boot sequence like so: run 'sudo nano /boot/grub/menu.lst', scroll down to the bottom and find the kernel entry you usually boot, and finally add 'profile' to the end after 'splash'. This flag will be automatically removed next boot and the profile run.

Install Preload — If your system has 1GB or more of RAM, run 'apt-get install preload' to install an intelligent preloader that monitors your frequently used applications and loads their required files into memory at boot time.

Use noatime — Ubuntu already uses the 'relatime' flag by default now (as of Ubuntu 8.04), which improves performance for Ext3 filesystems; however, you can squeeze a little more with 'noatime'. Run 'sudo nano /etc/fstab' and replace 'relatime' with 'noatime' for any drives using it.

Disable services — Just like with Windows, you can disable services you're not using to free up resources. Click System > Administration > Services, hit Unlock and disable those you don't need — for example, Bluetooth if you have no Bluetooth devices, CPU frequency manager if you're not on a laptop and so on. If unsure about a service, leave it enabled.

Disable startup programs — Gnome's equivalent of Windows' Startup folder: you will find some programs running at boot that you may not necessarily need. Click System > Preferences > Sessions and disable those you don't want, such as the Bluetooth manager, Evolution alarm notifier and so on. Don't disable any Gnome session programs or the Window Manager.

DO THIS... LOAD NVIDIA SETTINGS

If you use NVIDIA drivers you'll find the NVIDIA settings program (in Applications > System Tools) that allows you to change values like digital vibrance, vsync, anti-aliasing and more. However, these settings are lost when you reboot. To have them load at boot use the NVIDIA settings program to set your defaults, click System > Preferences > Sessions, followed by '+ Add' to add a new session. Give it a name like 'NVIDIA Settings' and, for 'Command', enter 'nvidia-settings -l'. Click Save, and your settings will be loaded at boot.

ADD MORE THEMES

Ubuntu comes with a small subset of themes and, bar making up your own by piecing together elements from *www.gnomelook.org* and *art.gnome.org*, there are some theme packages available in the Ubuntu repositories to install.

Start Synaptic with System > Administration > Synaptic package manager and then, in the search box, type in 'themes'. Select 'gnome-themes-extras' and 'community-themes'. After installation you'll find new themes under the Theme tab of the Appearance dialog, as well as new selections under the Controls, Window border, and Icons tab if you select 'Customize...'.

IN THIS ISSUE

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VIRTUALISATION

Build your own iPhone apps

Learn to develop for the iPhone by assembling a tip calculator using the free iPhone SDK, writes **Richard Hill**.

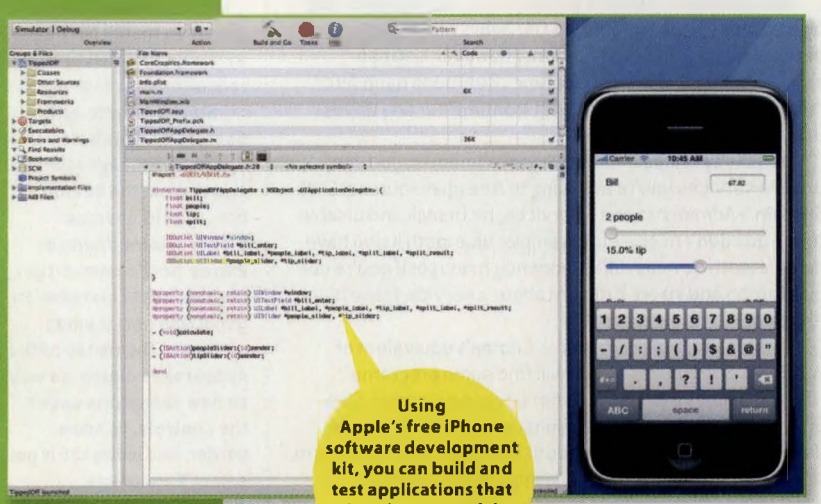
WHAT YOU'LL NEED

MAC OS X 10.5 LEOPARD
The iPhone development suite is available only for the latest Mac OS. Your computer should also have an Intel processor.

IPHONE SDK
Apple's free download provides all the tools and templates required to develop an iPhone application. Get it at *http://developer.apple.com*.

The iPhone SDK (software development kit) is free to download, but only for Mac OS X. It's based on the same Xcode development suite used to develop many Mac OS X apps, which provides a versatile environment for writing the Objective-C code that underpins iPhone software. It's complemented by companion tools, such as Instruments, that enable performance analysis and drag-and-drop interface building.

Here, we'll use the iPhone SDK to code and build an interface for a restaurant gratuity calculator called TippedOff. The software enables you to enter the amount of a party's bill with an on-screen keyboard, then adjust touch-operated sliders to set the number of people in the dining party and the proportion of the bill that decides the tip. The tip total updates automatically as you adjust these controls.



Using Apple's free iPhone software development kit, you can build and test applications that take advantage of the iPhone's advanced hardware.

GETTING STARTED

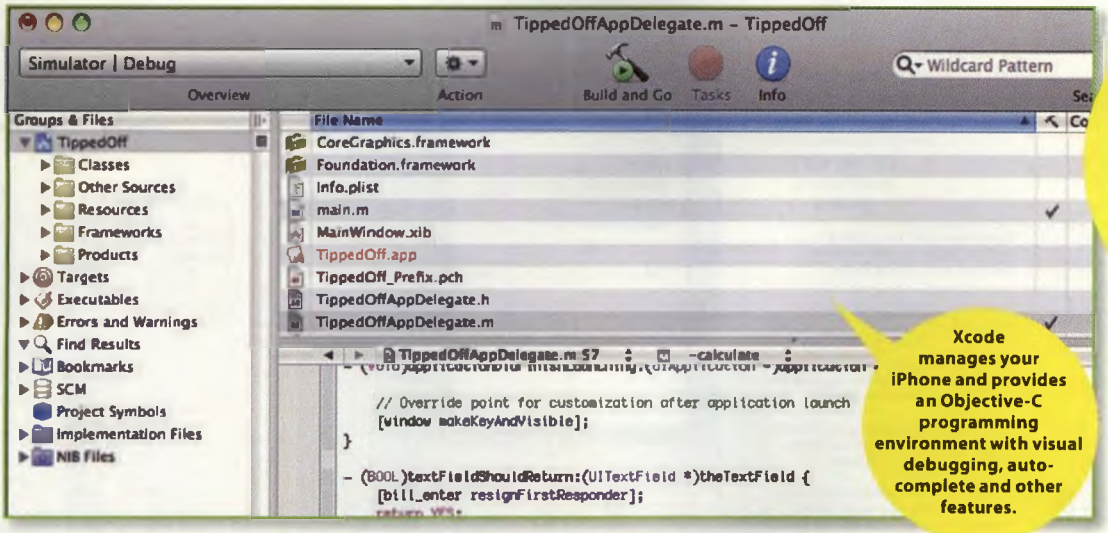
In Xcode, select 'File > New Project'. In the dialog that appears, click the 'iPhone OS' pane in the left-hand list and choose 'Window-Based Application' from the selection of application templates. Name this new project 'TippedOff'.

In the main window that opens, select 'TippedOff' in the left-hand list and then highlight 'TippedOffAppDelegate.h' in the file list. This document lists the variables, interface functions and other components. At present, it contains a single controller, which is automatically named after the project name you entered — in this case, 'TippedOffAppDelegate'. Remove the text between the curly brackets and enter the following in its place:

```
float bill;
float people;
float tip;
float split;
IBOutlet UIWindow *window; IBOutlet UITextField *bill_enter; IBOutlet UILabel *bill_label, *people_label, *tip_label, *split_ label, *split_result;
IBOutlet UISlider *people_slider, *tip_slider;
```

Note the semicolon ending each line. The first block defines our four variables — bill, people, tip and split — as floating-point numbers. The second sets up a series of interface elements, which are defined through the UI descriptions. The 'IBOutlet' tag defines the elements as usable within Xcode's companion program, Interface Builder.

Next, you'll set property declarations to store the current status of each interface element. Delete the existing line that starts '@property' and replace it with a copy of the four current 'IBOutlet' lines, pasting them below the AppDelegate



Xcode manages your iPhone and provides an Objective-C programming environment with visual debugging, auto-complete and other features.

curly brackets. On each line, exchange 'IBOutlet' with '@property (nonatomic, retain)', keeping the element names that follow. The first line, for example, should read '@ property (nonatomic, retain) UIWindow *window;'. This declaration has two components — 'nonatomic' aids multithreading efficiency, while 'retain' prevents the property value from being erased without your approval.

Finally, we name the three functions that the application uses as 'peopleSlider', 'tipSlider' and 'splitResult'. Below the four '@property lines', enter:

```
- (IBAction)peopleSlider:(id)sender;
- (IBAction)tipSlider:(id)sender;
- (IBAction)splitResult:(id)sender;
```

Again, 'IBAction' is a cue for Interface Builder, while the sender parameter identifies the source of a piece of data. Finally, as a separate line, enter the following:

```
- (void)calculate;
```

This declaration of the 'calculate' function is needed here, even though it's undefined, because later functions invoke 'calculate' as part of their operation.

BUILDING THE APPLICATION

Now we'll start to build the app's mechanics. Begin by copying the four '@property' lines, and then switch to the document 'TippedOffAppDelegate.m'. Delete the line that opens with '@synthesize' and paste the four '@property' lines into the space, replacing '@property (nonatomic, retain)' with '@synthesize'. Next, remove the UI describers and the asterisks preceding each function. The '@synthesize' function is an instruction for the software compiling program.

Several functions that handle application start-up and shut-down tasks are already set up. Any further functions are entered between them and '@end' line. The first section of code initialises the values of a few of the variables:

```
- init {
if (self = [super init]) {
bill = 0;
 people = 2; tip = 15; split = 0;
}
return self;
}
```

The next piece of code watches for users that enter text into the top-right text field, linked to the 'bill_enter' parameter:

```
- (BOOL)textFieldShouldReturn:(UIT extField
*)theTextField {
[bill_enter resignFirstResponder];
return YES;
}
```

After text is entered, the next fragment updates the text field display and converts numerical text to a true number. The calculate function then updates the 'bill split' total.

```
- (void)textFieldDidEndEditing:(UITe xtField *)theTextField
{
bill = bill_enter.text.floatValue;
theTextField.text = [NSString stringWithFormat:@"%1.2f",
theTextField.text.floatValue];
[self calculate];
}
```

The higher of the two Slider objects is peopleSlider, which sets the number of people in the group. The first line echoes the naming instructions in the previous document. The second line enables the position of the peopleSlider control to set the value for the variable 'people', turning the number into an integer. The third line changes the control's accompanying label according to the value of the 'people' variable.

```
- (IBAction)peopleSlider:(id)sender; { people =
rintf(people_slider.value); people_label.text = [NSString
stringWithFormat:@"%1.0f people", people];
[self calculate];
}
```

The tipSlider function is slightly different: it doesn't need to be changed to an integer and the variable part of the label is set to '%1.1' rather than '%1.0'. (A single decimal point is displayed):

```
\- (IBAction)tipSlider:(id)sender; {
tip = tip_slider.value;
```

Missed a tutorial?

Go to apcpro.com.au or www.magshop.com.au for back issues of APC

MORE ABOUT... INSTRUMENTS

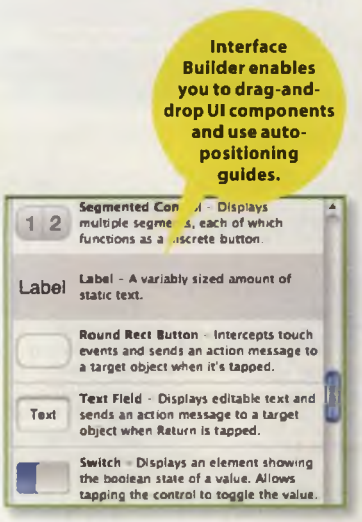
Included with the Xcode development suite, Instruments is used in the fourth stage of developing an iPhone app (after iPhone Simulator, Interface Builder and Xcode itself). Instruments helps you to improve performance by providing real-time feedback on how your app affects the hardware. You can use this data to optimise your code.

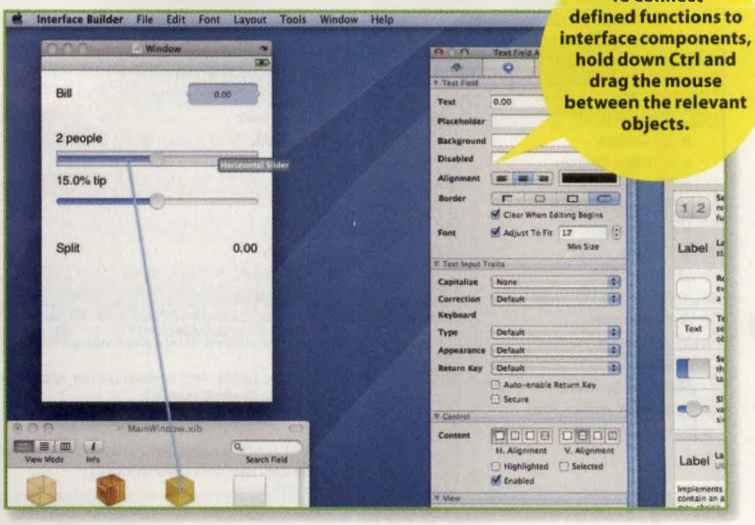
DO THIS... RELEASE YOUR APPS

Although the full iPhone SDK is free to download for anyone who registers at *www.apple.com/developer*, there's a price attached to bringing your new application to market. To test your program on hardware, rather than the iPhone Simulator, and to release your application via the App Store, you must join Apple's iPhone Developer Program. It costs $99 for individuals or small companies, and $299 for larger companies.

MORE ABOUT TOOLS FOR DEVS

Apple's own web site is a formidable resource for would-be iPhone developers. The iPhone Dev Centre (*http://developer.apple.com/iphone*) provides overview videos, in-depth documents and sample code to study. If you need more help, Xcode's documentation system, available via the Help menu, enables you to download an iPhone reference manual. Independent help is also available via Erica Sadun's iPhone Developer's Cookbook, which takes you through the basics of a well-rounded development regime. It explains concepts such as views and tables, then walks you through accessing the internet and displaying media. If you'd prefer sample code, then visit Apps Amuck (*www.appsamuck.com*). It recently unveiled its '31 days of iPhone apps' concept. It's publishing a new app every day to create a catalogue of code. And if you want to get acquainted with the SDK's foundations, Stephen Kochan's book *Programming in Objective-C* is regarded as one of the best introductions to the language — a new edition for Objective-C 2.0 is due before the end of the year.


Interface Builder enables you to drag-and-drop UI components and use auto-positioning guides.
Segmented Control - Displays multiple segments, each of which functions as a discrete button.
Label - A variably sized amount of static text.
Round Rect Button - Intercepts touch events and sends an action message to a target object when it's tapped.
Text Field - Displays editable text and sends an action message to a target object when Return is tapped.
Switch - Displays an element showing the boolean state of a value. Allows tapping the control to toggle the value.


To connect defined functions to interface components, hold down Ctrl and drag the mouse between the relevant objects.
Interface Builder File Edit Font Layout Tools Window Help
Bill
2 people
15.0% tip
Split
0.00

```
tip_label.text = [NSStringstringWith
Format:@"%1.1f%% tip", tip];
[self calculate];
}
```

The final code for this document defines the calculate function, which updates the 'bill split' figure whenever one of the controls is adjusted by a user:

```
- (void)calculate {
split = ((bill * tip / 100) + bill) / people;
split_result.text = [NSString stringWithFormat:@"%1.2f",
split];
}
```

With the various functions defined as code, you can now assemble the app itself with the SDK's Interface Builder.

ADDING SOME CONTROL

Double-click 'MainWindow.xib' in the TippedOff file list to open a blank Interface window and a separate window holding objects to link to your interface parts. Select 'Tools > Library' to open up a list of objects that you can drag onto the Interface window. Start with a Label object in the top-left corner and a Text Field object in the top-right. Placement guidelines appear as you move objects, enabling you to line up components easily.

Below these two objects, add two pairs of Label and Slider objects. Next, add two more Label objects in the bottom-left and bottom-right corners. Stretch the Slider objects so that they go across the screen's width. Finally, adjust the bottom-right Label's Layout Alignment to 'right' to make it neater.

To change the text of the Labels, select 'Tools > Attributes Inspector'. Then click on each Label in turn and change its 'Text' value. From the top, rename the Labels as 'Bill', '2 people' and '15.0% tip'. Rename the bottom two Labels as 'Split' and '0.00'. Some Labels will change values as the controls are adjusted, so what you've entered here represents the defaults that a user will see when the application is launched.

Next, you'll link the interface parts to controllers so that the user's adjustments to controls can affect the variables that you've established. Hold down Ctrl then click-and-drag from the TippedOffAppDelegate object onto the Bill Label. From the pop-up menu that appears, select the 'bill_label' Outlet. Similarly, link the 'people_label' Outlet to the '2 people' Label, 'tip_label' to the '15.0% tip' Label, 'split_label' to the 'Split' Label and 'split_result' to the '0.00' Label.

Now hold down Ctrl and once again click-and-drag from TippedOffAppDelegate to the Text Field object and link 'bill_enter'. Then link 'people_slider' to the higher Slider object and 'tip_slider' to the lower Slider.

You also need to link some Outlets in the opposite direction. Hold Ctrl, then click-and-drag from the Text Field object to TippedOffAppDelegate and select 'delegate'. Similarly, link up peopleSlider and tipSlider to the higher and lower Sliders.

The final operations to complete in Interface Builder define the controls' behaviour more tightly. First, select the Text Field object. In the Attributes Inspector's Text field, enter '0.00' as the default value, then change its Alignment to centred. Make sure that 'Clear When Editing Begins' is ticked. Under Text Input Traits, set Keyboard Type to 'Numbers & Punctuation' so the user doesn't have to switch over from the default keyboard. Change Return Key to 'Done' and tick 'Auto-enable Return Key'.

Now select the higher Slider object, which sets the number of people in the dining group.

In Attributes, set Minimum to '2' (you don't need to use the app if you're eating alone...) and Maximum to '20'. Set Initial to '2' as well: this matches the default Label for this Slider that you created earlier. For the lower Slider, which is used to set the tip percentage, set Minimum to '0' and Maximum to '25', then set Initial to '15' — again matching the default Label object you've defined for that Slider.

Your tip calculator is now ready to use. To try it out, return to Xcode and press 'Build and Go' in the toolbar. Xcode compiles the code and bundles it into an application, triggering iPhone Simulator to present the result. You can use the app as you would on an iPhone, dragging sliders and entering the bill total in the top-right text field.

There's a glut of such tools on the App Store, which provides a great opportunity to study how different programmers tackled the challenge of making a gratuity calculator (see the 'Do this' box). Why not see if you can come up with your own take on the app?

SECURITY

Recover your lost passwords

If you've forgotten your password, don't fret: there's more than one way to get your data back. **Jon Thompson** reports.

WHAT YOU'LL NEED

OPHCRACK
Software that can crack and display Windows passwords very quickly. Download it at: *http://ophcrack.sourceforge.net.*

XP INSTALLATION DISK
Repair mode allows you to reset the administrator password.

A USB STICK
For use with the Vista Password Recovery Wizard.

A LINUX LIVECD DISC
Boot one of these and you can remove the root password on your Linux installation.

WIRELESS KEYVIEW
This displays lost WEP and WMA wireless keys stored in Windows XP and Vista. Find it at *www.nirsoft.net/utils/wireless_key.html.*

WORD/EXCEL PASSWORD RECOVERY WIZARD
For cracking passwords applied to Microsoft Word and Excel documents. Download it from *http://tinyurl.com/nse3x.*

Let's quickly go over the legalities first. As long as the computing resource to which you're attempting to gain access is entirely yours, it's legal for you to recover the passwords protecting it. However, the penalties can be very severe if you try breaking into other people's computers.

WORKING IN XP

If you have administrator access to the machine, possibly the best tool for recovering the passwords of normal XP users is Ophcrack. The program uses a technique called 'rainbow tables'. These contain password hashes that can be quickly compared to any found in the operating system.

When installing Ophcrack, you'll be presented with several installation options. Choose the one next to last — to install the full, latest rainbow tables from the internet. Next, start up Ophcrack. Press the 'Load...' button and select the 'From local SAM' option. This loads and displays the names of the local accounts. To uncover their passwords, simply press the 'Launch' button. That's all there is to it. Working through all of the possibilities can take a while, but slowly, Ophcrack will begin filling in the password information for each account.

XP REPAIR BACKDOOR

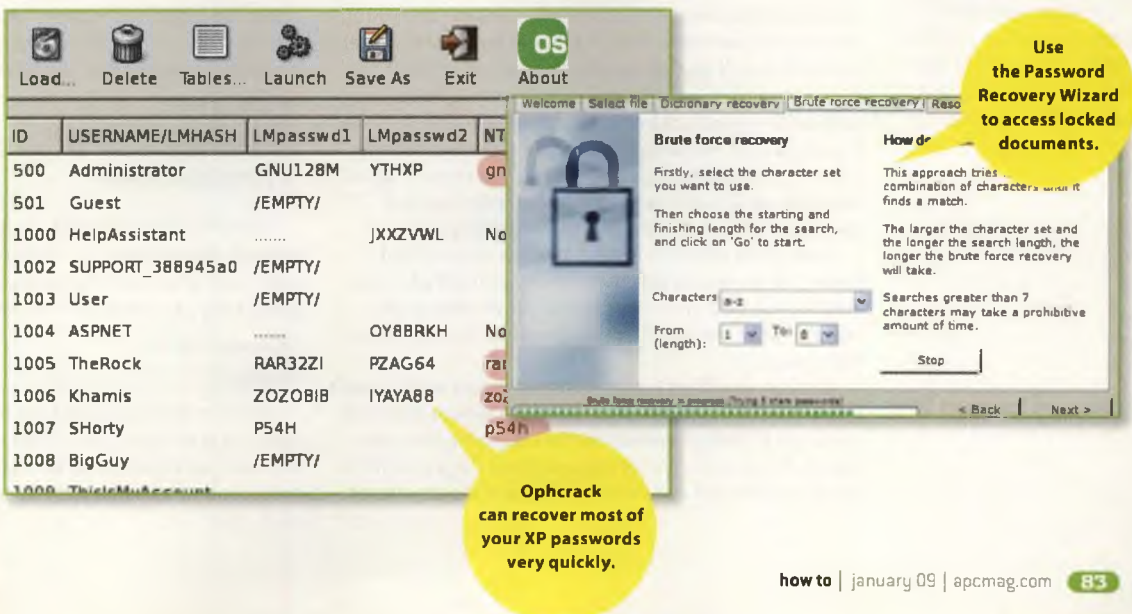
If you're locked out of your XP admin account, there's a security loophole in XP's recovery mechanism that you can use to get back in. For this, you'll need the XP installation disk. Once the CD boots, press Enter to set up Windows. Press F8 to accept the licence agreement and then select the option to perform a repair on your XP installation.

The software will then check your disks and copy the files that it needs for the repair. Shortly afterwards, the machine will reboot. The process resumes automatically. Keep watching the progress of the repair, and when it says 'Installing Devices', hold down the Shift key and press F10. A command line window will now open. At the prompt, enter the command 'NUSRMGR.CPL'. This will open the standard Account Management window.

You can now reset the administrator's password. Once done, close the Account Management window and the command line, and continue with the repair (remembering to have your XP product key handy). Once it's complete, you can log in with the new administrator password. You must let the repair finish, or Windows will roll the changed password back to the original.

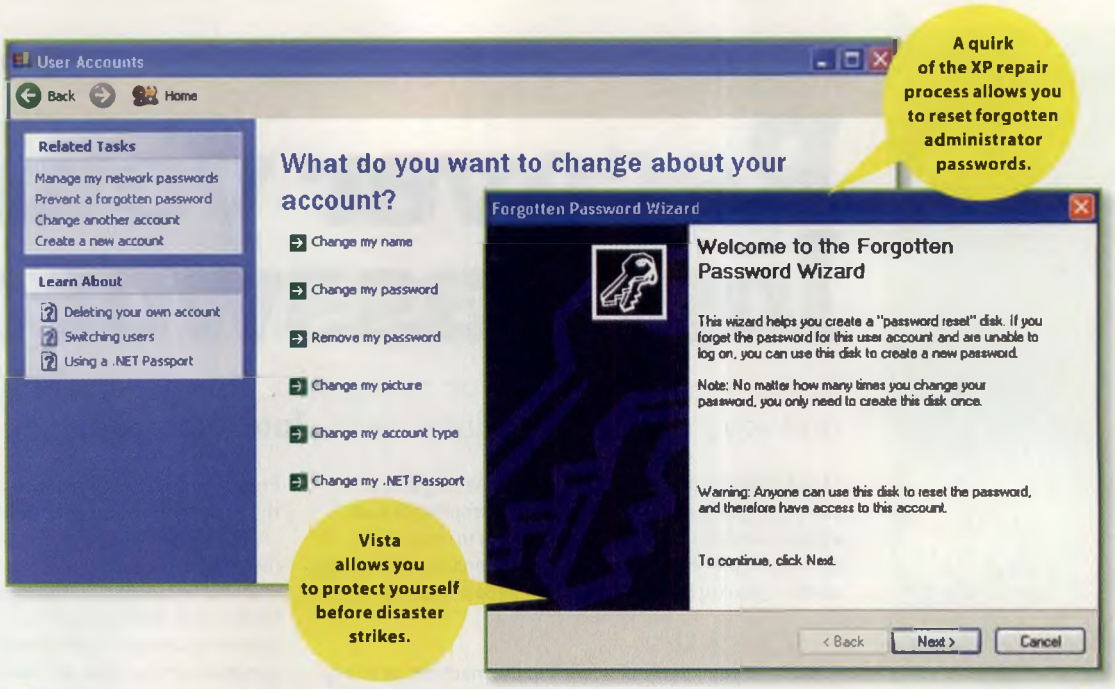
HASTA LA VISTA

Windows Vista contains a built-in method of recovering passwords, but it relies on you setting it up before you forget the password. You should do the following now before it's too late. The technique uses a USB memory stick, which you need to keep somewhere safe until it's needed. You can use an old MP3 player for this. First, log into the administrator's account. Next, click on the Start button, then enter the following command into the search box: 'control userpasswords'. Press Enter and a window will



DO THIS... CREATE AND TEST

There's nothing like a strong password to put a hacker off, but creating them is an art in itself. Luckily, the basic principles are easy to learn. First, never use a word you can find in the dictionary, not even with numbers in place of vowels, because this approach is too well known. A better approach is to construct a password from the initial letters of a memorable phrase. Even better is to use a line from your favourite song. When it's time to change the password, you can simply use the next line. If you forget your password, you can work through the lyrics.If you'd rather create passwords that are completely abstract, use keys from all areas of the keyboard. This will make 'shoulder surfing' and performing some cracking techniques a lot harder.If you're worried about the strength of your password, you can test it online. Microsoft runs a password-testing service at *www.tinyurl.com/ypc3dc*. You can use this page interactively to compose a particularly strong password, but you'd better make sure that you remember it, because it could be very difficult to crack if you forget.


User Accounts
Back
Home
Related Tasks
Manage my network passwords
Prevent a forgotten password
Change another account
Create a new account
Learn About
Deleting your own account
Switching users
Using a .NET Passport
What do you want to change about your account?
Change my name
Change my password
Remove my password
Change my picture
Change my account type
Change my .NET Passport
A quirk of the XP repair process allows you to reset forgotten administrator passwords.
Forgotten Password Wizard
Welcome to the Forgotten Password Wizard
This wizard helps you create a "password reset" disk. If you forget the password for this user account and are unable to log on, you can use this disk to create a new password.
Note: No matter how many times you change your password, you only need to create this disk once.
Warning: Anyone can use this disk to reset the password, and therefore have access to this account.
To continue, click Next.
< Back
Next >
Cancel
Vista allows you to protect yourself before disaster strikes.

> PENALTIES CAN BE SEVERE IF YOU TRY BREAKING INTO OTHER PEOPLE'S PCs

appear. Click on the option 'Create a Password Reset Disk'. This will activate the Forgotten Password wizard. Click 'Next' and insert your USB storage device. Now enter the current administrator's password, hit Enter and the wizard will write a file to the USB device.

Remove the device, label it and place it somewhere safe. As long as you don't change it, if you forget the admin account's password, simply plug the USB device into the machine and boot up. At the login prompt, click 'Reset Password'. This runs the Reset Password Wizard again. Click 'Next' then select the USB device. When prompted, enter a new password and confirm it with a second entry. You can now log in normally with the new password.

LOG IN TO LINUX

If you need to reset a normal Linux user's password, simply log in as root and enter the command 'passwd' followed by the affected username. Enter a new password when asked and confirm it. If you're locked out of the root account, try booting into runlevel 1. Your machine normally boots into runlevel 5 — graphical mode with full networking. Runlevel 1 is single user, text-only mode. In many distros, booting into this runlevel also logs you into the root account without requiring a password. You can then issue the 'passwd' command without a username to change the password.

How you boot into runlevel 1 depends on your boot loader, the identity of which will announce itself when you boot the machine. If your system uses Lilo, then at the 'boot:' prompt, simply enter the command: 'linux 1' (without the quotes).

With the Grub boot loader, when presented with the boot options, scroll to the one you usually use to boot into Linux and press E. The parameters for the selected option will appear. Scroll to the 'kernel' line and press E again to edit it. You can scroll back and forth on this line. If there's a 'quiet' or 'splash' option, take it out. Now add the word 'single' at the end and press Enter. Finally, press B to boot into runlevel 1.

All these boot loader changes are temporary, but once the kernel boots, it should ask you to either press Enter for maintenance or Ctrl+D to continue. Press Enter and you should simply receive root's command prompt. After changing the password and rebooting, remember that some distros don't let you log into the root account directly at the graphical login prompt. Instead, log into your normal user account and issue the 'su' command to change to root, entering a new password when you're prompted to.

If, however, your installation asks for the root password when booting into single-user mode, you can still get back in using a LiveCD Linux disc. Boot from the CD and issue the command 'fdisk –l' to list the file systems on the hard disk. You're looking for one marked 'Linux'. Let's assume that this is on dev/hda3. Enter the following commands (su to root first if the LiveCD doesn't automatically make you root):

```
# mkdir /mnt/it
# mount /dev/hda3 /mnt/it
# vi /mnt/it/etc/shadow
```

Use any editor to edit the shadow file. The gibberish between the first two colons on the line that begins with the word 'root' is root's encrypted password hash. Delete it to remove the password. Now issue the commands:

```
# umount /mnt/it
# reboot
```

Remove the LiveCD and boot the machine from the hard disk. Log in as normal and, when changing to the root account, you shouldn't be asked for a password. Once in the root account, issue the 'passwd' command to set another.

BIOS BACKDOOR PASSWORDS

A BUILT-IN WAY OF GETTING BACK IN.

If someone sets a password on your BIOS, you're effectively locked out until you enter it. Or are you? Here's a list of BIOS backdoor passwords that can help you to get back in. Once you gain access to your machine, remember to reset the BIOS password immediately.

AMI BIOS	A.M.I.	AMI	AMI_SW	AMI?SW	BIOS	HEWLITT RAND
	LKWPETER	PASSWORD	Oder			
AWARD BIOS	598598	595595	589589	589721	01322222	ALLY
	ALFAROME	AWARD SW	AWARD PW	AWARD_SW	AWARD?SW	AWKWARD
	BIOSTAR	CONCAT	Condo	d8on	djonet	HLT
	J64	J256	J262	J332	KDD	LKWPETER
	lkwpeter	PINT	pint SER	SKY_FOX	SYXZ	
	TTPTHA	ZAAADA	ZBAAACA	ZJAAADC		
IBM APTIVA BIOS	Press both mouse buttons repeatedly during the boot					
PHOENIX BIOS	phoenix					
OTHER BIOS TYPES	ALFAROME BIOSTAR	biostar	biosstar	CMOS	cmos	
	lkwpeter	setup	SETUP	Syxz	Wodj	

BIOS PASSWORDS

If you forget your BIOS password or someone decides to set one, the machine won't boot into an operating system until it's entered. Because of this, most BIOS manufacturers incorporate a backdoor password. The 'BIOS backdoor passwords' box above has a table of the most common ones, culled from various technical resources on the web. If none of these work and you can't find one online that matches your exact make and model of BIOS, all may not be lost, though things do get somewhat trickier. You're required you to reset the BIOS password in hardware.

The traditional method is to open your computer's case and carefully locate the tiny pins on the motherboard which, when shorted out, clear the BIOS password. Sometimes, these are part of a bank of tiny numbered switches. Whatever form they take, however, unless they're clearly marked, you'll need the manual for your motherboard. If you don't have it, you should be able to download it from the manufacturer's web site.

A more drastic method is to remove the small rechargeable battery powering the CMOS RAM and containing the BIOS settings. Some sources say that you should leave the battery out for at least 10 minutes before replacing it. If you've made any changes to your BIOS's setup since you took delivery of the machine, you'll have to enter these again after replacing the battery, but the BIOS password should have gone.

WI-FI AND OTHER DEVICES

If you forget the WEP or WMA key to your wireless network, you can recover it using the free software WirelessKeyView by Nir Sofer. This utility recovers the keys stored by the XP Wireless Zero Configuration service. If you're using Vista, it displays the keys stored by the WLAN AutoConfig service.

What if you've forgotten the admin password on your Wi-Fi router? The same applies to other devices with management interfaces. First, check that the manual doesn't mention a backdoor admin password. If not, visit **www.phenoelit-us.org/dpl/dpl.html** for a regularly updated list of default passwords for a very large range of hardware from different suppliers. If your make and model of equipment doesn't appear on that list and a web search also proves futile, you may have to reset the device to its factory default settings. This is dependent on the hardware, so go back to the documentation. Luckily, most domestic networking devices are designed for use out of the box, so reconfiguring them is no problem. To keep the amount of work required after a factory reset to a minimum, make a note of the exact configuration of all the devices before disaster strikes.

ACCESSING DOCUMENTS

Finally, documents of all kinds can have passwords applied. This can be very annoying if someone emails you something to work on but forgets to tell you what the password is. Luckily, help is at hand. One utility for Word and Excel documents is the free Word/ Excel Password Recovery Wizard. Open the Wizard's .zip file, double-click on 'setup.exe' and install the software. Run the program and press the 'Select File' tab to enter a file to crack. Now select 'Dictionary Recover' if you have a text file of possible passwords to try, or if you want to try the 'Brute Force Recovery', enter the maximum length of the password.

There are plenty of other free and low-cost file password-cracking programs, designed to crack other protected file types. Ultimately, it's best to try and avoid the problem by creating personal passwords that are hard to forget — and which others cannot hope to crack. APC

MORE ABOUT PASSWORD STORAGE

Modern operating systems don't actually store passwords, so how do they recognise when you've entered yours incorrectly? They store an encrypted version of the password called a hash. When you log in and enter your password, the log-on process encrypts what you enter and compares it to the hash stored against your username. If they match, you're in; and if not, you're not. For extra safety, even if you gain access to the stored hashes, there's typically no way of reverse engineering them back into plain text. The algorithms that generate the hashes are 'asymmetric', meaning that you can't simply work backwards like you can with a simple mathematical formula. To slow down hackers even further, the file containing all the hashes is usually protected. In Windows, this file is called SAM, short for Security Accounts Manager. In Linux, it's the '/etc/ shadow' file, which is linked to the '/etc/ passwd' file.

CLOUD COMPUTING

Take your apps online with Linux

Move your applications and your desktop onto the internet – so any PC can be your office. **Graham Morrison** reports.

WHAT YOU'LL NEED

FIREFOX AND A DECENT INTERNET CONNECTION
If you want to host your own virtual desktop, you'll need a low-power Linux server.

gOS
A Linux distro which is available on this issue's DVD.

Cloud computing is a bit of a misnomer, as it doesn't represent anything new. It's a mixture of online data storage and functionality that has been around for many years. However, thanks to the heady mix of storage, CPU power and increasingly fast and cheap broadband, cloud computing has become a feasible alternative.

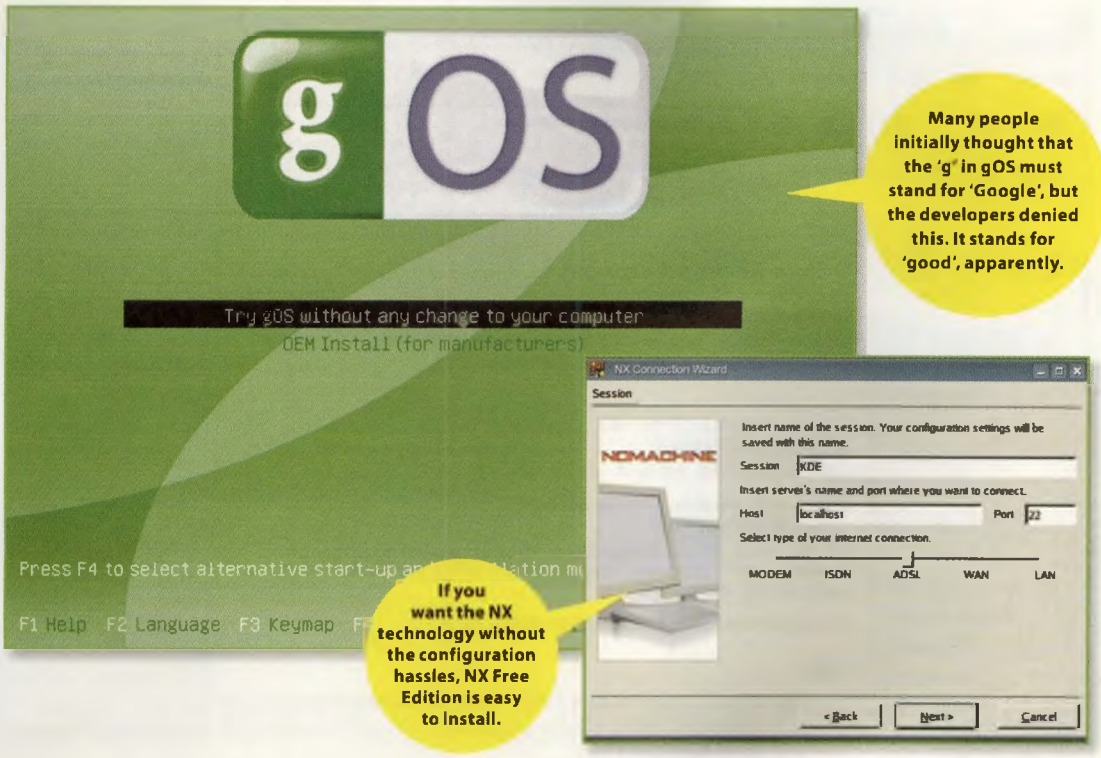
As a result, companies like Microsoft and Google are investing big money in this technology. They are keen to push online applications as their next phase for world domination. Microsoft gets complete control over who and how people use its software, and Google gets to look over your personal data before it gets published on the internet. Google currently leads the field with its Google Docs office suite, a viable alternative to OpenOffice.org.It might not have all of the features of its competitors or the streamlined Aero interface in Office 2003, but it makes up for this by bundling the features that 90 per cent of users will need with the convenience of storing your working files online — in the cloud.

If you work in more than one place, even if that's the office in your loft and your garden patio, working on a single document becomes much easier when there's a, central repository for your information. You know you're always working on the latest version. If you work with other people, then Google Docs lets you do things you simply can't do on the desktop. You can share the same working file and make changes at the same time. You can even open a message window to discuss the changes with team members from different corners of the world. However, the cutting-edge nature of this technology is reflected in its maturity, as all Google and Microsoft can offer currently are beta versions.

gOS

The Linux connection in all this is that it is an OS often at the heart of these services, and storage, even if it's not always associated with being the features client. Google uses Linux to power its servers and there are several companies that provide an entire Linux desktop 'in the cloud'.

Ulteo
Ulteo Online Desktop
Run Ulteo Online Desktop from your account page to spawn a Java session containing your desktop.
gOS
Sun Aug 31, 9:02 PM
Not Connected
H 81°F L 63°F
79°F
Happy, TX
Google News
9:02 pm Aug 31, 2008
If you like green, then gOS is the Linux distro for you. It also contains links to nearly every Linux-compatible Google product.


gOS
Try gOS without any change to your computer
OEM Install (for manufacturers)
Press F4 to select alternative start-up
F1 Help F2 Language F3 Keymap
NX Connection Wizard
Session
NOMACHINE
Insert name of the session. Your configuration settings will be saved with this name.
Session KDE
Insert server's name and port where you want to connect.
Host localhost
Port 22
Select type of your internet connection.
MODEM ISDN ADSL WAN LAN
< Back
Next >
Cancel

Many people initially thought that the 'g' in gOS must stand for 'Google', but the developers denied this. It stands for 'good', apparently.

If you want the NX technology without the configuration hassles, NX Free Edition is easy to install.

[gOS IS DESIGNED TO USE THE CLOUD AS MUCH AS POSSIBLE]

All this momentum for online computing has led to the creation of another Linux distribution, called 'gOS'. Its unique selling point is that it's designed to use the cloud as much as possible in order to capitalise on the technology of the times — distributed computing and netbooks. Early versions of this young distribution were designed for low-power, low-storage computers, but later versions have become more general while retaining the cloud slant. The essential functionality you expect from a distribution wasn't provided by the gigabytes of applications available through a package manager. It was provided instead by free services on the internet.

The gOS distro is easy to install because it's based on a slightly older version of Ubuntu. For this reason, you should expect very little hardware incompatibility and the installer uses the same 'try before you buy' approach. Just boot your machine with the CD inserted (once you've burnt the ISO to a disc), select 'Try gOS' from the boot menu and let the distro boot into a complete working environment. Like Ubuntu, this Live CD environment will run off the disc without writing a single byte to your hard drive. If you like what you see, you can make the installation permanent by clicking on the large green 'Install' icon on the desktop. And if you like gOS, you'll have to get used to the colour green, as it's used by almost every customised application on the disc. If you take a look at the taskbar at the bottom of the screen, you'll see that three of the first four applications are all Google-centric. There's a launch link to Firefox, Google Mail and Google Calendars, followed by Google Docs. You'll need a Google Account to use them.

If you've not tried Google Docs before, it's worth a look. It combines a word processor, spreadsheet and presentation package, and the user interface should feel very familiar if you've used any office suite before. Firefox, Internet Explorer and Safari are all officially supported, and it's amazing to see fully fledged applications like these running through a browser. If you're using one of the recently released beta versions of gOS (and there's no reason not to), you will also see a fully functional implementation of the Linux version of Google's Desktop Gadgets. These litter the desktop and are intended to be roughly equivalent to Apple's Dashboard widgets. Some are silly, such as the plant-watering image, but others are a window to your Google accounts, including Calendar reminders, your Gmail inbox status and some Google News headlines. They use an open platform, and as a result, you can download dozens more by searching for Google's Desktop Gadgets repository.

GOOGLE GEARS

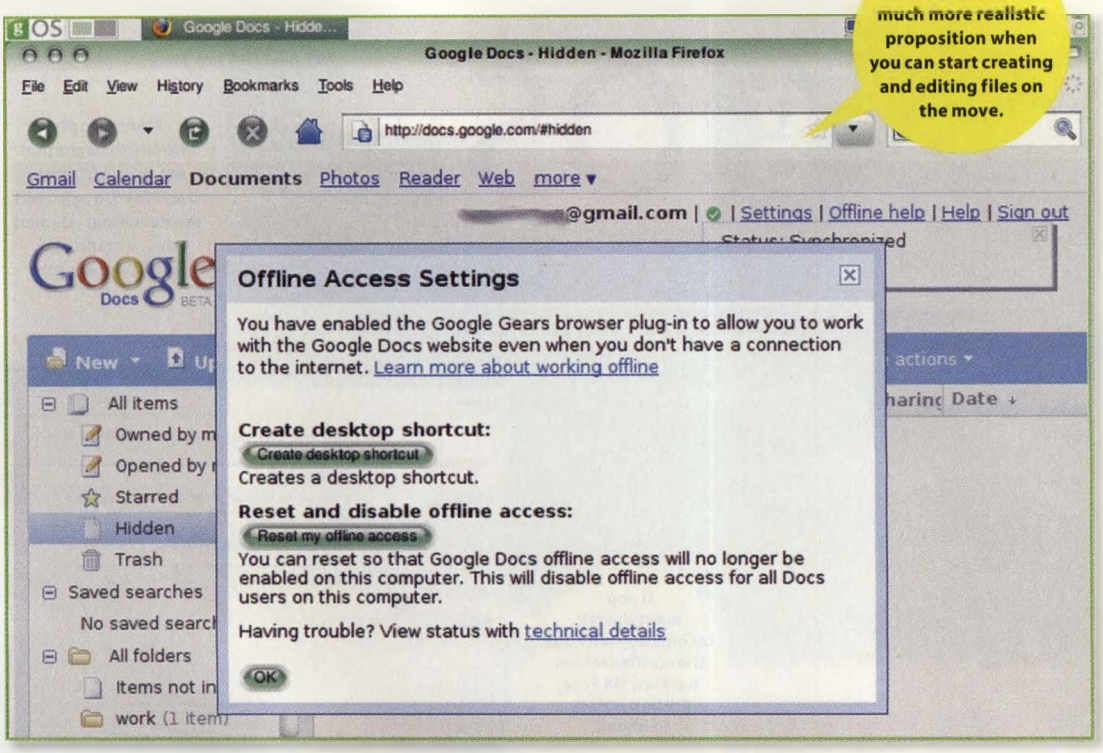
So far, so good. But you might be wondering what gOS offers over other Linux distributions, other than a few tweaks and an overly Google-centric desktop? The answer is Google Gears. This is a beta service offered by Google, and it provides a solution to the biggest problem with cloud computing applications — what happens when you're offline? When Google Gears is installed, you'll be able to use Google Docs, Google Reader, Zoho Writer and Remember the Milk (an online task manager) offline — and Google plans to

TIP...

Remote desktops and applications have a lot in common with thin client computing, a technology well suited to the Linux operating system. In the days before affordable computer hardware, a Unix server would be used to provide virtual consoles as clients. Each machine would have a screen and a keyboard, and gave the impression of being entirely independent. The reality was that each session was a virtual console on the server. You can still see this today in a Linux installation by pressing Ctrl+Alt+[any function key]. This is the command to switch between the 10 virtual consoles running on a standard Linux installation.

MORE ABOUT NOMACHINE NX

NX is a proprietary alternative to VNC, and is in many ways a much more efficient solution. Rather than encoding chunks of bitmap information from the screen, as VNC does, NX subverts the drawing commands at the X11 level and reconstructs those commands on the client to rebuild the same display. This results in a lot less data being transmitted, which means that an NX session can be used even on old-school modem connections, and the whole environment operates much more quickly and efficiently. This is functionally very similar to Microsoft's Remote Desktop protocol, and they both feature similar performance. If you're used to VNC, NX is something of a revelation, as NX even supports audio and remote printers. Unfortunately, it's not quite as open or as ubiquitous as VNC, and it has failed to garner much community support. This is a pity, because the core technology within NX is already released as open source. This has led to a completely free version of the desktop-sharing software and you can now find packages for most common distributions, including Ubuntu and Mandriva. Free clients can be downloaded for Windows, OS X and Linux, which brings your Linux desktop within reach of whatever operating system you happen to be using.


Google Docs becomes a much more realistic proposition when you can start creating and editing files on the move.
Google Docs - Hidden - Mozilla Firefox
File Edit View History Bookmarks Tools Help
http://docs.google.com/#hidden
Gmail Calendar Documents Photos Reader Web more
@gmail.com | Settings | Offline help | Help | Sign out
Offline Access Settings
You have enabled the Google Gears browser plug-in to allow you to work with the Google Docs website even when you don't have a connection to the internet. Learn more about working offline
Create desktop shortcut:
Create desktop shortcut
Creates a desktop shortcut.
Reset and disable offline access:
Reset my offline access
You can reset so that Google Docs offline access will no longer be enabled on this computer. This will disable offline access for all Docs users on this computer.
Having trouble? View status with technical details
OK
New
All items
Starred
Hidden
Trash
Saved searches
All folders
Items not in
work (1 item)
Date

YOU CAN NOW CREATE AND EDIT GOOGLE DOCUMENTS WHILE OFFLINE

offer support for all its online services, including Gmail. To install Google Gears, click on the 'g' menu on the top right of the screen and select 'Add Google Gears'. Firefox will open a Google Gears web page hosted on the gOS web server. From here, you can watch a few YouTube videos of Google Gears in action, before clicking on the **http://gears.google.com** link to the install page. Gears is a Firefox extension, so can be installed with a couple of clicks.

When you visit a compatible site, you will now get the option of taking the online functionality offline. With Google Docs, for example, an 'Offline' link appears in the account bar. Clicking on this will open another window, asking if you want to install offline access for Google Docs. Click on 'Enable' and the Gears extension will warn you that the Google Docs application is requesting permission to store information on your local computer. Agree to this and you get the option to install a shortcut, before your online documents synchronise with your local machine. You can now create and edit documents in the Google file manager while offline. The small tick mark in the top border indicates whether the online and offline data is synchronised, and will manage the update when you reconnect.

ULTEO

It's all very well having a variety of applications that you can use from any computer with a web browser, but it's hardly a complete desktop replacement. This is a technology that has been promised for some time. Earlier on in the year, we saw the first signs that this might become a reality thanks to Linux and a company called Ulteo. Ulteo was founded by Frenchman Gaël Duval. He was also the founder of the Mandrake distribution in the 1990s, a distribution that helped to change the popular perception that Linux was always difficult to install and use. And it's clear that he hopes the Ulteo Online Desktop will do the same for Linux desktops in the cloud. The Ulteo Online Desktop is free and fully functional, albeit with an annoying session length limit. You currently only have to pay if you require more storage and synchronisation options.

To try it out, you first need to create an account at **www.ulteo.com** then return to the site and click on the Online Desktop product page followed by the 'Start' link. If you're logged in, you'll need to accept an incoming Java application before clicking on 'Launch Session Now' on the account web page. A few seconds later, depending on the speed of your connection, you should see the Ulteo Online Desktop running in a Java window.

As with gOS, the general layout of the desktop should feel very familiar if you've used Ubuntu recently. Ulteo uses a customised version of the KDE desktop and you can find the usual array of applications tucked away within the K menu on the bottom left-hand corner of the screen. Ulteo bundles every application that you might want or need, including instant messaging, OpenOffice.org, Firefox and even media playback apps like Amarok and VLC.

Ulteo aims to be at the centre of your digital life, which is why it includes music playback software along with photo-editing and drawing tools. A top bar of buttons provides macro functionality for the session, including transferring

Transfer files
Share desktop
Close desktop
Ulteo uses Ubuntu running a KDE desktop, which makes it feel much like any other Linux distribution.
Google Gears on gOS - Mozilla Firefox
Discover Google Gears with gOS
1. What is Google Gears?
Google Gears allows you to use web apps offline. In the future, you'll be able to use Gmail and Google Calendar and all the other web apps completely offline.
Google Gears is a cutting-edge feature that lets web-based apps run without an internet connection.

files between your online desktop and your local one, sharing the desktop display with someone else and closing the current session. If you've ever used a remote VNC session, the Ulteo Online Desktop has similar characteristics. On the downside, Window updates can be lost and there are some crude artefacts on the screen that seem to be the side effect of the JPEG compression used to send the remote display over a network. It's hard to criticise a beta, especially when you seem to have complete control over an online virtual machine, but it can get in the way of Ulteo being functional.

OFFLINE FUNCTIONALITY

To solve the problem of being offline, there's also an Ulteo equivalent to the Google Gears application installed on gOS — the Ulteo Application system. This is a full Linux installation that works within Windows but without a reboot. It mirrors the application available in the online version and runs within a discreet virtual machine. The software behind it is called Cooperative Linux, and it can share Windows system resources rather than stealing them, which is the way that virtualisation alternatives like VMware and VirtualBox work. Synchronisation between the local and online desktop is handled automatically, and applications run at close to native speeds.

It might still be only a beta version, but Ulteo is shaping up to be a very interesting suite of functionality that's leading the march on the cloud.

MORE ABOUT... SECURITY ISSUES

Security is a big issue if you're using VNC across an open network such as the internet. There are various solutions, but the best we've found is to use an SSH tunnel to map the VNC port on the remote machine to a local one. Connect to the remote server by typing 'ssh -L 5901: localhost:5901 remote_ip_addr' and use a VNC client on the local machine to connect to 'localhost: 5901'. All VNC data between the two machines will be encrypted through the SSH tunnel.

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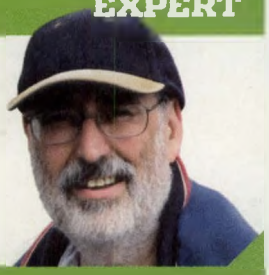
READER WORKSHOP

Portable sound recording studio

A recording expert shows you how to record and edit high-quality concert hall music on a laptop.



APC EXPERT

MIKE LE VOI

Mike is a Software and Performance Technical Specialist. He is a member of the worldwide Global Support Centre for Hitachi Data Systems. His main hobby is music. He has multiple Roland and Yamaha MIDI keyboards and synthesisers. He is also a long-standing member of the 4MBS Classic FM Concert Recording Team. He has been recording Australian and international classical music artists for the last 18 years and has recorded and produced many commercial CDs.

WHAT YOU'LL NEED

A LAPTOP
A mid-range laptop will do, but like with most things, the faster the better.

EXTERNAL SOUND MODULE
A USB attached recorder that attaches to your laptop.

MICROPHONES
A set of single and omni-directional mics to get that real stereo sound.

Twenty years ago, the ability to record live music and make it into a high-quality CD was a pipe dream for most of us. However, with the huge technology advances of the last 10 years, this is now a relatively easy thing to do. This article describes how to record an ensemble, how to edit the music and then produce the final CD.

PRODUCTION EQUIPMENT

Ten years ago I used to feed analogue recordings into a desktop PC using an internal sound card. Once on hard disk, I would edit the recording and burn a CD. With the advent of laptop recording, the music is recorded real-time onto the same piece of equipment that is used to perform the final edit and produce the CD master. This saves endless amounts of time and means that the final CD is produced from the original master recording.

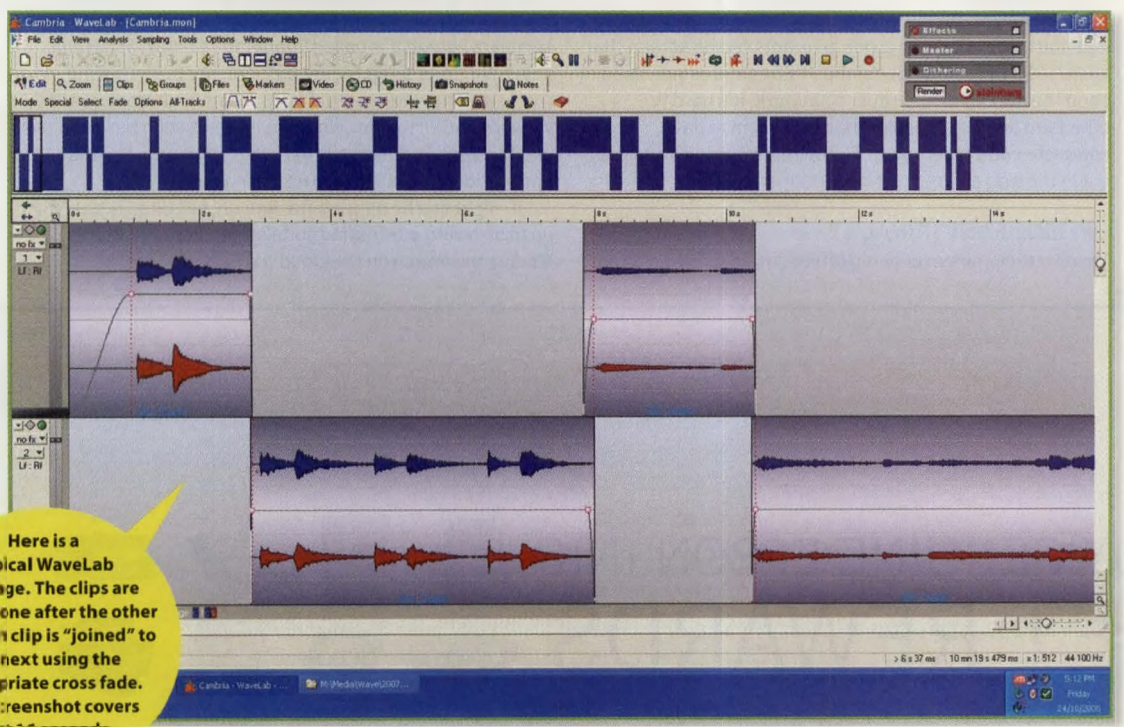
MICROPHONES AND MIXERS

To make a good recording, you need good microphones and a good mixer. There are three main types of microphones:
Omni-directional mics: record sound arriving to the mic from all directions.
Cardioid mics: record sound arriving from in front of them.
Figure 8 mics: record sound arriving from the front and rear only.

Ideally, you should buy mics as a matched pair as you will almost certainly need this for good stereo recording. Stereo recording has changed a lot over the years but microphone techniques are still pretty standard, and you will find that you will need different mics for different venues and different ensembles. As examples of this, here are some details of the last three recordings that I have made:

LARGE CONCERT HALL — CHAMBER ORCHESTRA

- Stereo pair of omni mics — in front of orchestra



Here is a typical WaveLab montage. The clips are aligned one after the other and each clip is "joined" to the next using the appropriate cross fade. This screenshot covers just 16 seconds of music.

RECORDINGS ARE IN REAL-TIME ONTO THE EQUIPMENT USED TO EDIT THE FINAL CD

In a large concert hall, a single pair of good quality omni mics is all you need to make a great recording of a string quartet or a chamber orchestra of about 20 musicians.

LARGE CONCERT HALL — FULL SYMPHONY ORCHESTRA WITH SOLOISTS

- Stereo pair of omni mics — in front of orchestra
- Stereo pair of omni mics — behind the strings and in front of the woodwind
- Two cardioid mics — one for soprano and one for tenor

Here we are using omni microphones to record the orchestra and the required ambience from the hall. You need a separate pair on the woodwind/brass as the front stereo pair will not pick up the back half of the orchestra sufficiently. The directional cardioid mics are used as "spots" to pick up the soloists.

LECTURE THEATRE — PIANO TRIO

- Stereo pair of cardioid mics on violin and cello
- Stereo pair of cardioid mics – close to piano – used as "spots"

In this venue, the hall does not add to the sound, so you need a "dry" recording technique, and you add the concert hall reverberation afterwards using PC music production software.

Most modern mics are phantom-powered, which means that they need a mixer or mic pre-amp to provide the required 48-volt phantom power — as well as to amplify the sound before it reaches the line-in on the laptop sound module. I use a mixer because in critical live recordings I send:

- Two to eight tracks to laptop one using EDIROL UA-101
- "Live" stereo mix to laptop two using EDIROL UA-5
- Same stereo mix to dedicated TASCAM CD Recorder

If laptop one fails, at least I have laptop two. The CD master is given to the artist when the concert has finished so they can hear the concert for themselves.

Microphone placement is critical for a good recording. There are standard arrangements for each stereo pair, such as spaced Omni, ORTF or NOS pattern. If you have access to figure 8 mics, you can also experiment with Blumlein, MS or Faulkner techniques. The use of these techniques is beyond the scope of this article, so do some Google searches for more information.

As good figure 8 mics are generally expensive, you will most probably start by using omni and cardioid mics until the recording bug gets to you. Start with a simple NOS pattern if you are using cardioid mics. You can get a matched pair of Australian-made RODE NT5 cardioid mics for $600 or so. Make sure you are too close rather than too far from the sound source. You can always add reverb later if required.

Whatever you do, use your ears! Record the rehearsal and listen to the recording. Reposition your mics as required. You learn how to record by using your ears in many different locations. Sometimes, moving a stereo pair of mics as little as half a metre can make all the difference. Be prepared to be flexible and learn as you go.

MORE ABOUT... RECORDING EQUIPMENT

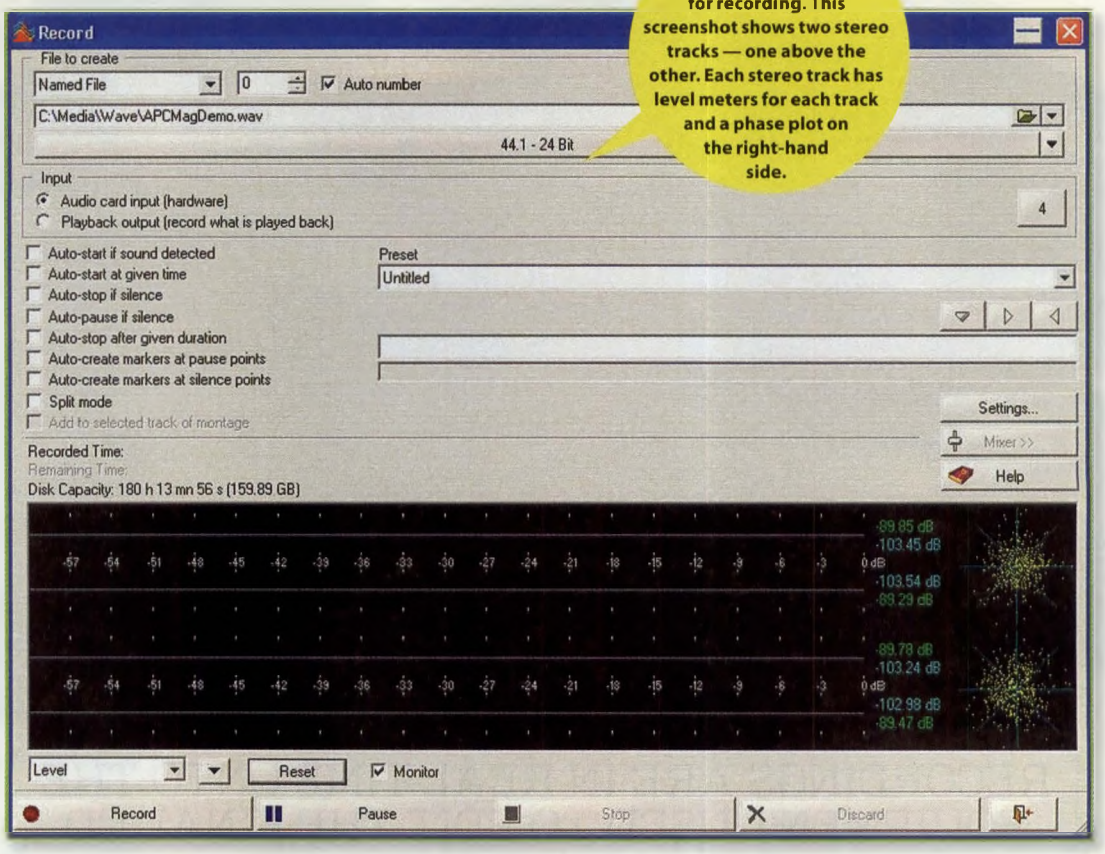
I used to take huge reel-to-reel tape recorders to concert halls. After the recording, it was back to the studio, where we would dub from one tape recorder to another to produce the final tape which went to air. However, by 2003, it was possible to buy reasonably priced external sound modules that could be attached to laptops via USB. I currently use an EDIROL UA-101 sound module — which can record eight tracks at 24-bit resolution at up to 192KHz sampling rate. In the same period, laptops have moved from 30GB hard drives to 320GB hard drives. Thus, it is now possible to record for days on end with better quality and far more tracks than a standard CD.

MORE ABOUT... EFFECTS AND PLUG-INS

Good software like WaveLab will allow you to use DirectX and VST plug-ins. There are thousands of plug-ins to choose from. In general, you use them sparingly. The easiest way to get a great sound is to make a great recording at the venue — so this is where you should concentrate your activities. Nevertheless, there are a few plug-ins that I use over and over again. They are:

ToolsOne
A simple WaveLab VST plug-in for adjusting balance, phase, levels etc.

WaveHammer
This is a DirectX plug-in from Sound Forge 5. It is a compressor and volume maximiser. I purchased Sound Forge 5 many years ago — and even though I now use WaveLab for editing, I normally use WaveHammer "Smooth Compression", as this setting applies a small level of compression whilst maintaining a natural dynamic range. Most classical performances have a lot of dynamic range, which works well in the concert hall but is usually too much for the average living room. You use compression in small amounts to make recordings sound more acceptable for the majority of users.



> THE SAVED MONTAGE IS A TINY FILE, YOU CAN EXPERIMENT AS MUCH AS YOU LIKE.

PC SOFTWARE

Windows XP is a good platform for a laptop recorder. Vista Home Premium is also fine, as long as you disable all unnecessary services. Whatever you do, in XP go to Control Panel > System > Advanced > Performance > Advanced and set Processor Scheduling to Background Services. You want to make sure that the sound module driver gets all the CPU it needs.

You can start with free software like Audacity. However, for maximum flexibility you need better software such as Pro Tools, Cubase etc. I use WaveLab for recording and editing, mainly because WaveLab has what is called a Montage Editor (see screenshot). Once you have used such an editor, you will never use another.

Editing in a montage is non-destructive. In other words, the original sound files are never altered. You assemble "clips" and cross fade them as required. You can cut and paste any part of any file and mix them as required. You can also add effects such as balance, stereo width, reverb and compression via plug-ins without altering the original files. The saved montage is a tiny file, so you can experiment as much as you like.

TRICKS OF THE TRADE

Once you have started a live recording, touch nothing until the performers walk off stage. You will edit the whole performance afterwards, so just record everything. In particular:

- Turn off all screen savers.
- Set your Power Management to "Home Office/Desk" or "Always On".
- Make sure hard disks and monitor will not turn off for at least an hour — whether on mains power or using batteries.
- Use balanced leads to connect the mixer to the sound module — usually Tip-Ring-Sleeve.
- If you are using unbalanced leads — such as RCA cables — unplug the laptop power supply just prior to the recording and record on laptop battery power. Laptop power supplies are notoriously noisy and you are very likely to get low level buzz and hum in your recording.
- If you run the laptop on batteries, turn the screen brightness down to minimum and recharge the batteries during the concert interval.
- Don't open or close Windows Explorer during the recording.
- Do not use a USB mouse or any other USB devices. The only device attached to the USB controller should be the sound module.

The top stereo track is the main pair of mics. The bottom stereo track is the "spot" stereo track of the piano. Notice how the relative levels of each track are adjusted.
Stereo Expander
SIR
This is a screenshot of SIR Version 1 — showing my favourite concert hall reverb.

• Practice recording "nothing" at home for an hour or two. I had two live recordings ruined by an intermittently faulty USB cable. Throw such a cable away and get another one.

MULTITRACK EDITING

If you need to do a lot of editing, do not attempt to do this with the multitrack files, as you will find this to be almost impossible.

"Time align" your multitrack files in the Montage, apply any required effects such as balance and stereo width, adjust the levels of each stereo track versus the other tracks and then render the lot to a 24-bit stereo mix.

Always monitor and mix on the best set of headphones you can afford. However, when you are applying the final set of effects prior to mastering, use very good monitor speakers. If you master only on headphones, you will almost certainly be disappointed when you hear the final master via speakers. Remember, most people are going to listen to your CD on anything from a car stereo to a good hi-fi — so you need to master using speakers as well.

MASTERING AND CD PRODUCTION

After applying all the edits, you add the final effects using plug-ins and then render the montage to a CD image and CUE sheet.

You can use programs like Wavelab to burn a CD but I never do this. It is always safer to render to CD image and then use a good CD burning program like Nero to burn the final image with the CD recorder and burn speed of your choice.

If you are making master CDs to go to a manufacturing plant, cut three CDs — using expensive blanks — on two or three different PCs — at 8-16 times speed. Never burn a CD master at 48 times. When CD burning maximum speed was 24, I used to burn at 4 times. However, nowadays it is impossible to burn an audio CD at less than 8 times, or sometimes 16 times. Use a low number, rather than a high number. There is nothing worse than getting a call from the CD mastering plant telling you that the only master you have supplied has too many errors to be used!

CONCLUSION

I hope this short article has inspired you to go out and do some live recording with your laptop. You will be amazed at what is now possible with the latest sound modules, laptops and recording software available on the market today!

EVEN MORE ABOUT... EFFECTS AND PLUG-INS

Stereo Expander

This plug-in can widen or reduce the apparent width of the stereo image. If you use two sets of stereo mics, as in the symphony orchestra recording noted, the stereo width of the back pair will need to be reduced. You cannot have the oboe just right of centre in the front pair and hard right in the back pair. Use your ears and adjust accordingly before you mix down to stereo prior to the final set of edits.

SIR

This VST plug-in is freeware at *www.knufinke.de/sir/*. This astonishing plug-in allows you to simulate the concert hall of your choice. It takes your stereo mix and an impulse from a well-known concert hall and alters the sound of your recording to make your recording sound like it was recorded in the same concert hall. I still use SIR Version 1, although Version 2 is now available. My favourite impulse was made at the famous Concertgebouw concert hall in Europe.

Be careful. In general, use less "Wet" sound from the plug-in than the default. Also, your recording should be relatively "Dry", or you will get a combination of your "Wet" sound and the plug-in. This may not be what you want. I always use this plug-in for recordings made in the lecture theatre mentioned earlier.

masterclass

STEP-BY-STEP TRAINING

IN THIS SERIES

Learn how to network every digital device in your home, everywhere from the home theatre to the bedroom. This is the ultimate home-networking tutorial on how to turn your castle into a 21st-Century digital paradise.

APC EXPERT

THE CONNECTED GUY

David Neiger will be building the connected house in a real home and will be filing regular columns and updating the *APC* web site as he goes along. David is a qualified engineer with many years of networking, IT implementation, consulting and project management experience.

WHAT'S NEXT?

PART 2
FEBRUARY '09
SETTING UP THE STUDY

PART 3
MARCH '09
NETWORKING THE HOME THEATRE

PART 4
APRIL '09
STREAMING HARDWARE

PART 1 OF TWELVE **CREATE THE ULTIMATE CONNECTED HOME**

The Ultimate Connected Home

Learn how to connect your PC to your HDTV to your stereo to your iPod to your security camera. . . and more.

If you've always wanted a connected house but didn't know where to start, this is the Masterclass for you. We'll take a typical suburban house with a standard internet connection and, over the next 12 months, turn it into the ultimate connected house. We will show you, step-by-step, how to network your computing gear to smart digital products and appliances that communicate with each other and change the way your house works.

We'll break the house into network zones and network it room-by-room, so that you can choose to implement only the zones that suit you. After this introductory chapter, in which we look at setting up a broadband connection with the required speed, we'll divide the project into the following chapters.

STUDY ZONE

After installing the basic connectivity infrastructure, we'll begin by connecting the study, which will also become the internet gateway for the rest of the home. It doesn't matter whether you use PC or Mac — we will show you how to get them talking together, sharing devices and making the most of your internet connection.

HOME THEATRE ZONE (OVER 3 ISSUES)

We'll then move into the loungeroom, where we'll network your home theatre system so it can access the content available on your PC and the internet. We'll show how to stream photos, music and video to your TV, stereo and other entertainment devices around the house.

BEDROOM ZONE

Next is the bedroom, where we'll cover the kind of digital entertainment that's best enjoyed when you are having fun (relaxing) in bed.

KITCHEN ZONE

Then we're off to the kitchen, showcasing the latest practical connected appliances to help with your food preparation, cooking or just to keep your pantry stocked.

GAMES ZONE

We'll indulge in a games room, to show you how to connect the various gaming devices to the best televisions and speakers.

BUSINESS ZONE (GRANNY FLAT)

Assuming that many of you do serious work from home, we'll turn the granny flat into a small office and show you how to network it and explore the best communication technologies so that to outsiders you appear to be a big business.

GARAGE AND CAR ZONE

We'll show you how to install and get the best out of the latest in-car sound and video systems and how to pump content into them.

HOME AUTOMATION ZONE

We'll show you how to use technology to make your house more energy-efficient with smart climate control and home-automation systems.

SECURITY ZONE

Then, once you have the ultimate connected house, we will show you how to keep it secure with affordable security and monitoring solutions that will keep the crooks away and allow you to keep an eye on things when you travel. Sound exciting? Let's get started and turn your house into a digital haven.

Missed a tutorial?
www.apcpro.com.au or www.magshop.com.au for back issues of APC

AT THE VERY BEGINNING — YOUR INTERNET CONNECTION

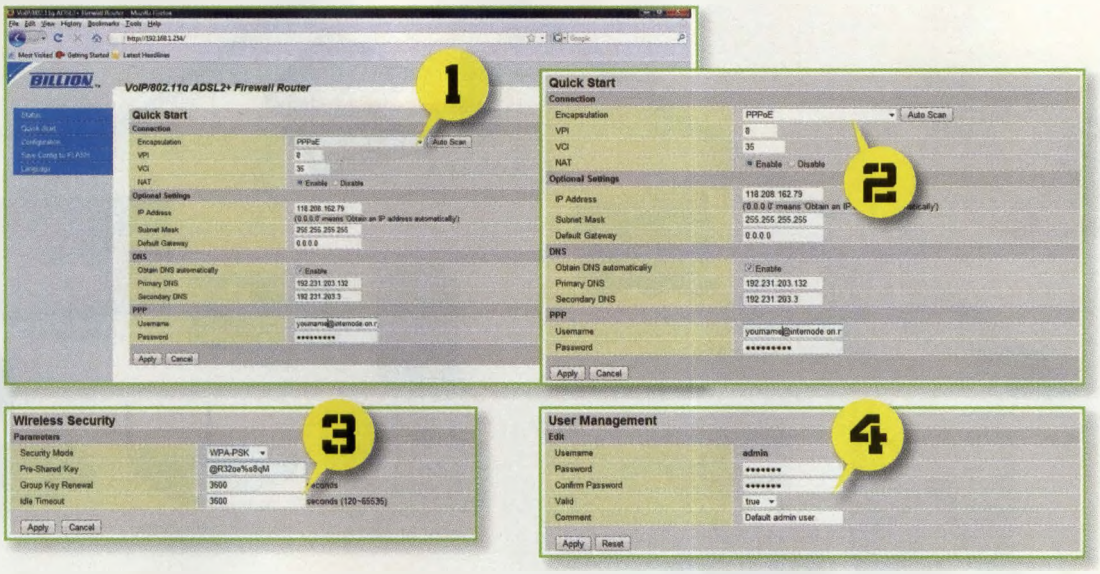
One of the most important things to connect in a connected house is, of course, the internet. This is because all of our connected devices will use the internet either to allow us to communicate with them or to access content (such as updates, music and movies) online.

Since video and audio applications need to constantly transfer lots of data, you need a reasonable-speed broadband internet connection. High-bandwidth applications such as ABC TV's iView or high-definition video require an internet connection with at least 1Mbit/s constant download rate. If you're (god forbid) on dialup, or 256 or 512Kbit/s, your connection isn't going to be fast enough and you should look at upgrading your plan.

Less data-intensive applications such as YouTube still require a reliable connection, otherwise the video will stutter and pause whilst the data is buffered. If you want to be able to use several devices simultaneously or download content whilst watching something else, you will need correspondingly more bandwidth.

THE NETWORK ZONES

We will break down our house into separate networking zones that we'll eventually connect by the end of the series. In each chapter we'll show you how to connect a particular room or aspects of a room.



ONE OF THE MOST IMPORTANT THINGS IN A CONNECTED HOUSE IS THE INTERNET

The other reason for a reasonably fast broadband connection is that home-automation devices need an always-on connection so that you can remotely access them.

Whilst the bandwidth (data transfer) requirements are not as high, a reliable connection is still required, particularly for home security applications where you may want to stream video from a webcam to a remote device.

CALCULATE THE BANDWIDTH

In order to calculate the amount of bandwidth you need, you need to determine what applications you will require and add the bandwidth requirements of each application together to determine the minimum bandwidth requirement.

For example, if you want to be able to stream high-quality radio you need 128Kbit/s. If you simultaneously want to make VoIP telephone calls you need an additional 8-64Kbit/s, download songs from iTunes (say 50Kbit/s), watch high-quality streaming video (512Kbit/s) and allow some overhead for web surfing, software updates and other communications needs (128Kbit/s). In our scenario we would need, as a minimum, 826Kbit/s.

In reality you can hardly ever achieve the maximum download speed quoted. Internet bandwidth is expensive, particularly in a country such as Australia, which is far away from the rest of the world and sparsely populated.

In order to make internet connections more affordable, ISPs will share the upstream connections with other users, assuming that not everyone will use the available bandwidth at the same time. This is known as the contention ratio, which is defined as the ratio of the potential maximum demand to the actual bandwidth.

As a general rule, the more you pay for the internet connection the lower the contention ratio and consequently the more likely you are to be able to achieve close to the quoted download speeds. The contention ratio can vary enormously between ISPs and providers, so it is important to check with ADSL buyer's guides, reports in *APC* Magazine and user experiences (on sites such as Whirlpool — **www.whirlpool.net.au**) before signing up.

This is particularly relevant if you are choosing wireless broadband, since our experience has found that performance between each of the carrier's networks varies dramatically, even though they all have at least a 3.6Mbit/s-capable network. As at the time of writing, the Telstra Next G network far outperformed all other wireless networks, although you will be paying a premium to use this service — and it comes with a monthly quota of a measly 10GB.

WIRED vs WIRELESS

There are advantages and disadvantages of both wired and wireless networks. If you can get a wired DSL network connection where you live and you are not likely to be moving house very often, then get wired. DSL connections work out considerably better value than their wireless equivalents.

Wired DSL connections are generally more stable and have less latency (delay between sending and receiving information), which makes them better for VoIP applications, gaming and real-time video streaming.

Provided you live close enough to the telephone exchange, DSL connections are also generally faster than wireless, and you get more download quota for your money. Many ISPs also offer fixed-fee DSL connections, where your data transfer speed gets slowed when you exceed your monthly quota rather than charging you prohibitive excess download charges.

The trouble with wired DSL network connections is that they are not available to everyone. In order to get a

MORE ABOUT NAKED DSL PLANS

Very low users
Naked Home 1 ADSL2+
2GB + 2GB
$49.95

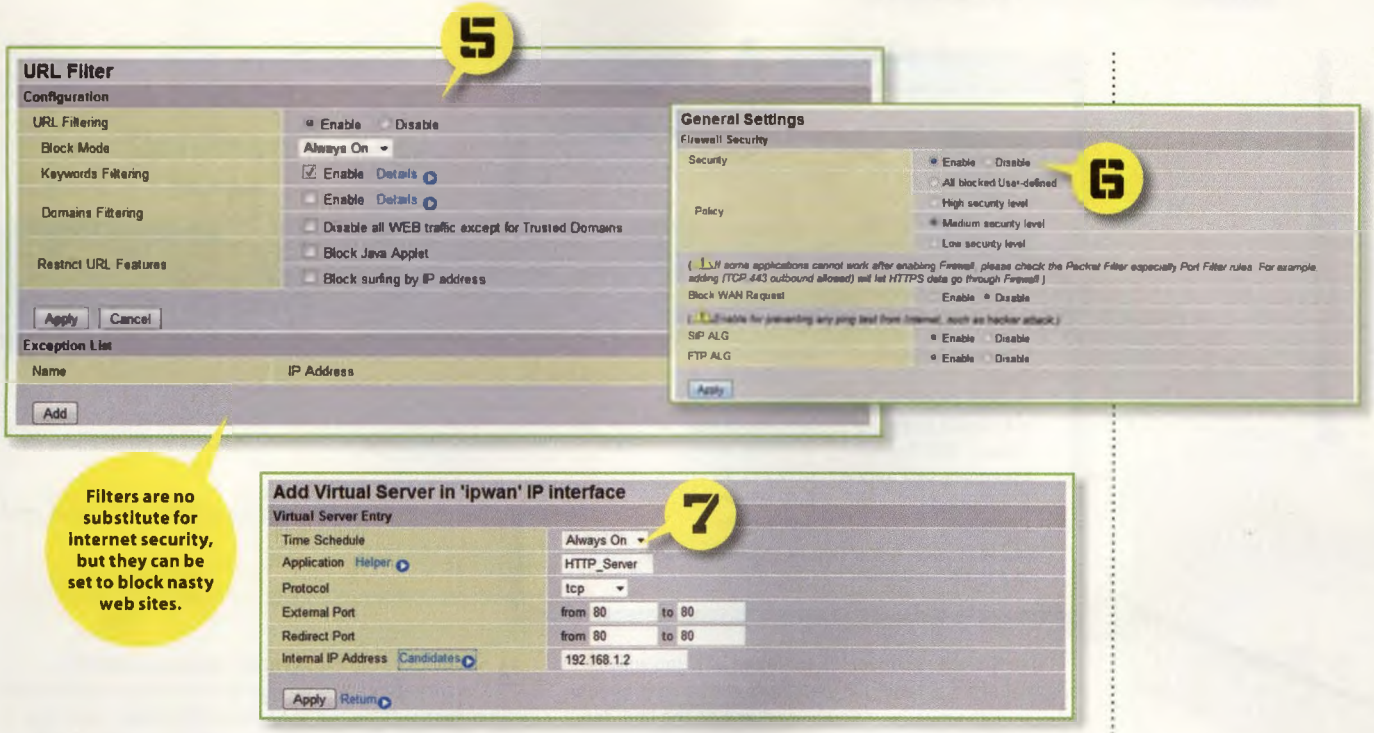
Low-end users
Naked Home 2 ADSL2+
8GB + 8GB
$59.95

Medium users
Naked Home 3 ADSL2+
15GB + 20GB
$69.95

Mid-range users
Naked Home 4 ADSL2+
30GB + 30GB
$79.95

High-end users
Naked Home 5 ADSL2
40GB + 60GB
$89.95

Extreme users
Naked Home 6 ADSL2+
65GB + 65GB
$119.95



Filters are no substitute for internet security, but they can be set to block nasty web sites.

DSL connection, you need to be within a certain distance from a DSL enabled exchange, there needs to be available capacity at the exchange to connect you up and you need a clear line between your house and the exchange.

Unfortunately, this is not always the case, even in metropolitan areas, as lines do not always run directly to the exchange and the line between your house and the exchange may have a line-sharing device or PABX (if you live in a apartment) on it which blocks DSL signals.

The other problem with DSL is that you need to pay line rental on a telephone line which, depending upon your telecommunications provider, can cost around $30 per month on top of your internet charges. If you do not already have a telephone line you will need to pay at least $300 to connect the line, before you can even get DSL.

Wireless internet connections have the advantage that you don't need a telephone line, so they can be installed immediately. You don't need to pay line rental and they are available anywhere within the 3G mobile coverage zones of your telecommunications provider. They are great if you move around a lot or rent, since you don't have to pay a reconnection fee every time you change address.

Unfortunately, wireless internet connections are expensive and only offer relatively small data transfer quotas. Unlike many wired DSL plans, both uploads and downloads are counted in your quota. You also need to monitor your wireless data transfer quota very carefully as excess charges are prohibitive (between $150-$250 per gigabyte depending upon your contract).

Wireless internet connections are also less reliable than wired connections, as the data transfer speed can vary significantly depending upon weather conditions and the number of people making calls or transferring data in your immediate area. With some wireless network providers it is almost impossible to get broadband speeds during peak usage times (from about 5pm until midnight)!

In our connected house we will be using both an Internode Naked DSL connection and a Telstra Next G wireless connection. At the time of writing, Internode's ADSL2+ Naked DSL was the connection of choice for demanding users, while Telstra's Next G network was easily the best performing.

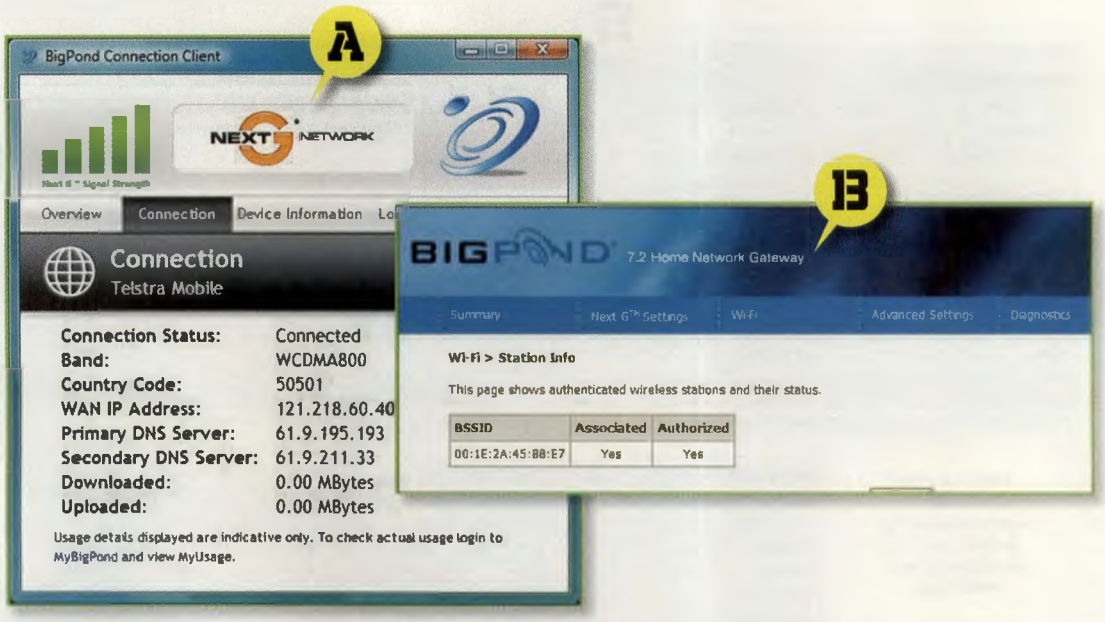
SETTING UP A NAKED DSL CONNECTION

We assume most *APC* readers will already have an ADSL connection that runs over their telephone line. This will provide the internet connection for this Connected Home series.

However, there is also now a new option for connecting, a so-called "Naked DSL" line, which *we* will use in this series. Unlike a standard ADSL connection, a Naked DSL connection lets you use a telephone line without having to pay Telstra the monthly rental fee. Naked DSL connections are favoured by users who use mobile phones or VoIP for their primary telephones, since they can avoid the basic $20-$30 fee for their telephone connection whether they use it or not.

Since we want to go the whole digital hog in our Connected Home, we've arranged for the house's telephone line to be converted to Naked ADSL. As we've said, if you already have an ADSL connection, you don't need to worry about this, but if you already have a phone line that you do not use and are prepared to live without a fixed line phone (ie. switch to VoIP or have all of your friends ring you on your mobile) you can have your ISP arrange to have the line converted to naked DSL.

If you don't have a phone line connected you will need to organise with the ISP or Telstra to connect the phone line. As at the time of writing, this will cost you $59 if there is an active phone line going into your house, or at least $300 if Telstra needs to lay a new cable.



Once the line is converted to Naked DSL you will no longer hear a dial tone (instead there will be continuous tone) and you may hear some crackling on the line. You will no longer be able to make or receive phone calls and you will lose your telephone number unless you make other arrangements.

Most ISPs give you the option of either purchasing a router from them (usually at a competitive price) or you can reuse an existing router, or purchase a router outright from a computer shop. It is easier to purchase the router from the ISP, as it usually comes preconfigured, the ISP has tested the router to ensure it is compatible with its network and the ISP is better able to support the router. If you use your own router and encounter difficulties, the chances are that your ISP will refer you to the router manufacturer for support and the router manufacturer will refer you back to the ISP, leaving you in an unsatisfactory no-win situation.

If you purchase the router from Internode, it comes ready to plug into the telephone line and to connect computers to it using Ethernet cables. By default, the wireless network, the firewall and security are not configured.

1 If you need to configure your own router, you will need to enter the settings for the connection as supplied by your ISP. Most routers have a Quick Start page that allows you to enter these settings and get connected quickly. To set up wireless networking from the router so that it can provide a connection to wireless devices around the house, you need to go to the wireless menu, which is usually found in the LAN settings.

2 You will need to enable the wireless access point and ensure that it is set for Australian conditions. You can usually use the default channel, but if your network performance is suboptimal or you already have a wireless network installed (or your neighbour has one close by) you should scan the channels to find one which is free.

3 The next step is essential (unless you want to unintentionally share your internet connection with your neighbours and anyone else in the area). Go to the wireless security tab and enable WPA PSK or WPA2 PSK security. You will need to enter a password that should be a random combination of letters, capitals, numbers and symbols. This password is used to encrypt all wireless data and prevents neighbours from being able to connect to and eavesdrop on your network. By default wireless security is *not* enabled, which leaves your network wide open to eavesdropping and unauthorised connections.

4 The next important step is to change the default username and password. Hackers scan IP address ranges looking for unsecured routers, and it is not hard to guess the default username of admin with the password admin or password! Like with the wireless security password, the admin password should be a random combination of letters, capitals and numbers; however, it is important that you write this password down or remember it — otherwise you may need to reset your router to factory defaults if you forget it.

5 Many routers, such as the Billion router supplied by Internode, have built in security features such as URL filtering, firewalls and the ability to block bandwidth-hogging peer-to-peer applications. Whilst these filters are no substitute for regularly updated internet security software, they can be configured to block obviously nasty web sites.

6 You should also enable the router's inbuilt firewall with the default settings, as this will provide some level of protection for the computer on your network.

7 If you are planning on hosting your own web or email server you will need to either enable a DMZ (a specific IP address inside your network where the server is accessible from the outside) or set up a virtual server. The Billion router is configurable to allow access to various common servers.

MORE ABOUT TELSTRA NEXT G PLANS

Super G Fast 7.2 Mobile Card & Wireless Home Network Gateway
550Kbit/s-3.0Mbit/s / up to 1.3Mbit/s

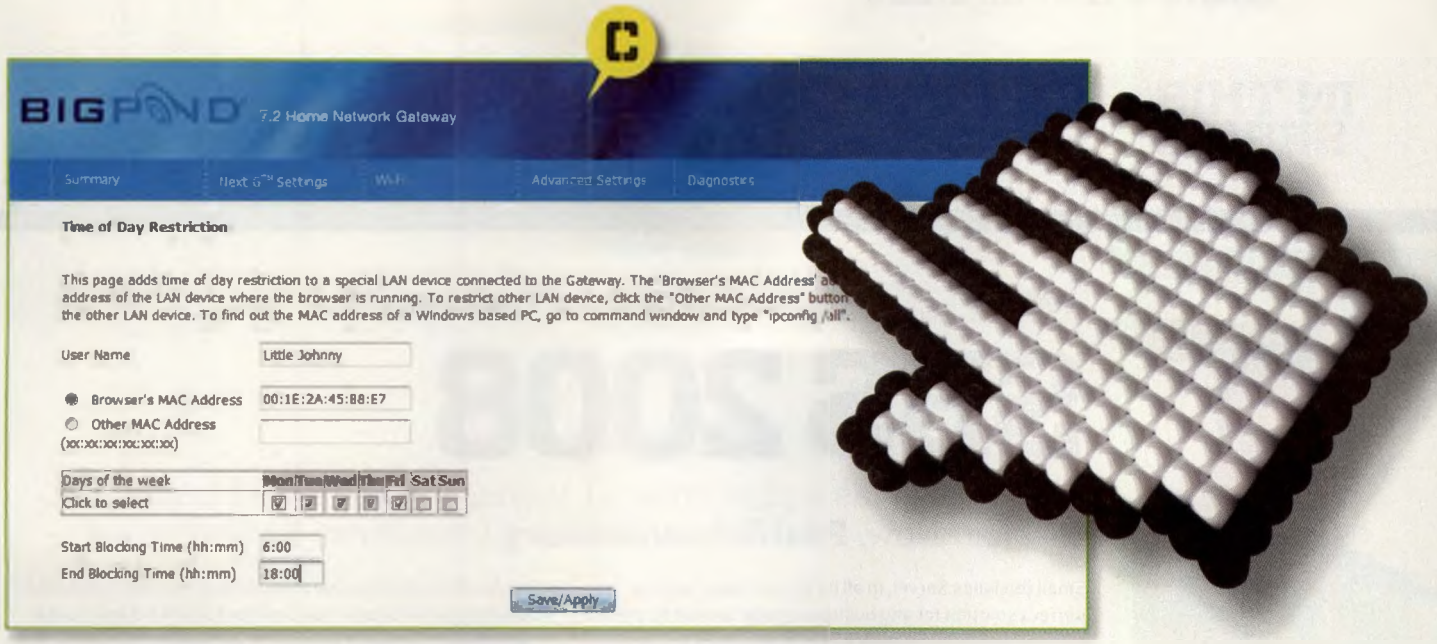
Standard Mobile Card and Built-In Devices*
550Kbit/s-3.0Mbit/s / up to 384Kbit/s

200MB
$29.95

1GB
$59.95

BigPond Liberty
5GB
$89.95

BigPond Liberty
10GB
$129.95


C
BIGPOND 7.2 Home Network Gateway
Summary
Next G™ Settings
Wi-Fi
Advanced Settings
Diagnostics
Time of Day Restriction
This page adds time of day restriction to a special LAN device connected to the Gateway. The 'Browser's MAC Address' a
address of the LAN device where the browser is running. To restrict other LAN device, click the "Other MAC Address" button
the other LAN device. To find out the MAC address of a Windows based PC, go to command window and type "ipconfig /all".
User Name
Little Johnny
Browser's MAC Address
00:1E:2A:45:B8:E7
Other MAC Address
(xx:xx:xx:xx:xx:xx)
Days of the week
Mon Tue Wed Thu Fri Sat Sun
Click to select
Start Blocking Time (hh:mm)
6:00
End Blocking Time (hh:mm)
18:00
Save/Apply

Finally, after the configuration is complete, you need to save it to flash memory (so that it will be retained even if the router is powered off) and check that everything is working by looking at the status screen.

SETTING UP A TELSTRA NEXT G WIRELESS CONNECTION

If you can't get an ADSL connection, your alternative is a wireless one. You might pay a fortune for a Telstra Next G wireless connection but it's the closest wireless option to a fixed ADSL connection, and setting it up is incredibly easy, provided you live in a Next G coverage area.

You can either purchase a Next G Home Network Gateway from a Telstra shop or electronics dealer or order one over the phone from Telstra. In our experience we recommend purchasing one from a shop, otherwise you have to be home when the Gateway is delivered in order to sign for it.

Connecting up the Next G Home Network Gateway is a simple matter of attaching the wireless antennas, plugging the unit into the power and positioning it to receive the best Next G signal available. Whilst the Next G signals do work well inside buildings, it is best to place the Home Network Gateway near a window.

A Connect the Home Network Gateway up to your computer with an Ethernet cable and run the install CD. The CD installs the necessary software to monitor the Next G Home Network Gateway and guides you through the registration process. Select an internet plan, give your Telstra account details and within a few minutes you are connected to BigPond Wireless Internet. Windows will ask what type of network this is. If you have other computers on your network and want to share data with them, choose home, as the Home Network Gateway has an inbuilt firewall to reduce the risk of hackers being able to access your computers.

If you want to connect wirelessly, you can simply browse for wireless networks from Vista or Windows XP (or enter the network name provided on the enclosed information card), enter the WPA (also on the information card) and connect to the Home Network Gateway.

Basically that is all you need to do to connect to BigPond Wireless Internet. If you want more control over your router, it is possible to easily configure it from a browser interface. Unfortunately, Telstra does not give you much information as to how to do this, and it is our understanding the BigPond technical support will not provide much guidance either.

B One of the things you might want to do to make it harder (but not impossible) for your neighbours to steal your internet is to restrict the stations that can connect to the Home Network Gateway. To do this you need to know the MAC address (the unique network identifier) of each computer that is permitted to connect. The MAC address is usually printed on a tag attached to your notebook computer or wireless network adaptor and consists of 12 hexadecimal digits.

To restrict access, log onto your Home Network Gateway (by starting up your browser and entering the default address of 10.0.0.138), enter the username and password and choose Wi-Fi — Mac Filter. Enter the permitted MAC addresses in the table, then choose Allow. This will limit access to only those MAC addresses listed in the table. If you have not entered your MAC address correctly you will lose access to the router. This is not a problem, since you can always connect back to the router via an Ethernet cable.

The next thing you should do is change the default password. The router is pre-configured to allow anyone to access it, provided they know the username and password. It is not hard for a hacker to stumble upon a router and log in with the default. When choosing a password, use a random combination of numbers and letters as obvious passwords (such as admin, password, secret) are too easy to guess.

C The other thing you can do is restrict access to the internet by time of day. This is useful if you want to ensure that your kids can't access the internet if you are not home. Of course, if they have physical access to the router they can always reset it to the factory default, but at least you will know they have been hacking! BTTC

MORE ONLINE...

If you have questions about our Connected Home Masterclass, go to our forums at apcpro.com.au/connectedhome, and discuss them with *APC* staff and other readers.

IN THIS SERIES

In this Masterclass series, **Paul Schnackenburg** walks you through everything you need to know about Small Business Server 2008.

APC EXPERT

PAUL SCHNACKENBURG

Paul started out as a building engineer but changed to IT, becoming a CAD and network manager in his homeland Sweden. He moved to Australia eight years ago and runs his own business as an IT consultant to small businesses, with the primary platform being MS Small Business Server.

WHAT'S NEXT?

PART 2 FEBRUARY '09 CONFIGURATION & TUNING

PART 3 MARCH '09 MIGRATING SETTINGS & DATA

PART 4 APRIL '09 BACKUP & STORAGE

PART 5 MAY '09 SWING MIGRATION

PART 1 OF FIVE SMALL BUSINESS SERVER 2008

SBS 2008

SBS 2003 was a phenomenal success in the small business market. Now, **Paul Schnackenburg** introduces its successor.

Small Business Server, in all its incarnations, was the perfect solution for any business ready to leave its peer-to-peer/workgroup network behind and move to a 'real' server network. Designed for businesses with up to 75 employees, the take-up by small businesses was massive because the benefits were huge: from centralised management, security and storage to backup and easy remote access.

SBS 2003 brought several very popular technologies, such as Remote Web Workplace, the web-based access to mail, collaboration and the office computer desktop. Now, SBS 2008 has been released. At its core, SBS continues the tradition by bundling together Windows Server, Exchange Server, SharePoint and SQL Server, updated to their latest incarnations — but many things are different.

Starting this month, we'll go into how to install, migrate to and manage this new beast. A fresh installation of SBS 2008 is surprisingly simple to execute, and a lot faster than the 2003 install. But since the architecture is different, since you're moving from 32-bit to 64-bit, you can't upgrade simply from 2003. You will have to migrate.

SBS 2008 is 64-bit only while SBS 2003 is 32-bit only. That means you need an AMD or Intel x64 CPU to run SBS, with a minimum CPU speed of 2.66GHz. You also need at least 4GB of memory in production; for a test server you can get away with less, although the setup program will warn you.

SBS 2008 is a single NIC server designed to be protected from the dangers of the internet by a hardware router/firewall. This also means ISA is no longer part of SBS, unless your business has a current Software Assurance agreement. In this case, you should receive ISA 2006, with a copy of Windows Server 2003 when you upgrade.

Also new is a handy distribution tool to install the SBS self-signed certificate on remote computers and even on Windows Mobile devices; this tool was sadly lacking in SBS 2003. There's a four month trial of Microsoft's antivirus included in SBS 2008, and Client Access Licences (CAL) can be purchased in single packs, along with the five and 25 packs currently available.

And, of course, there are improvements in security, collaboration and connectivity in SBS 2008, as well as streamlined installation and enhanced Vista compatibility.

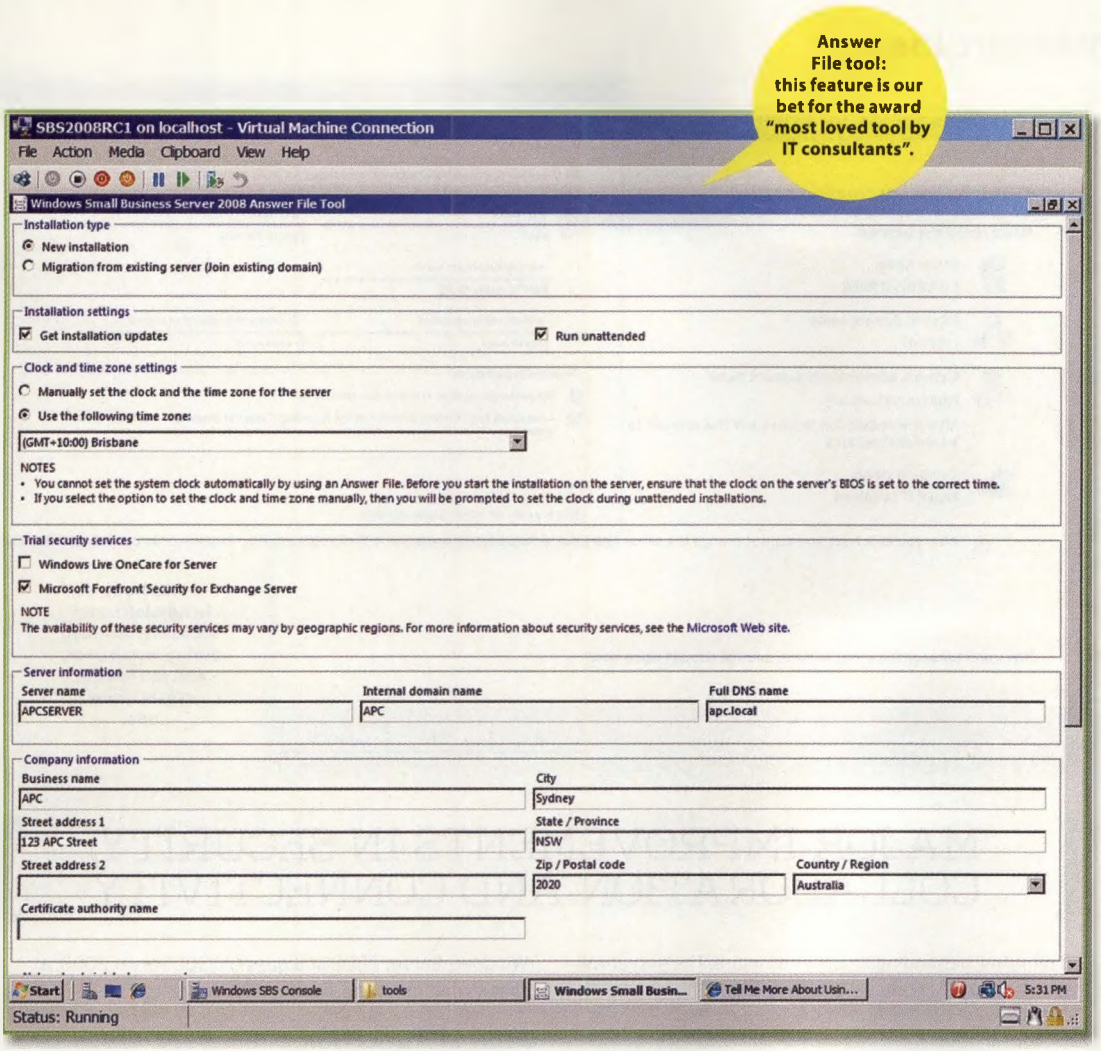
PREPARATION

Before you pop the DVD in and start your first installation, open the 'Installation Worksheet' and collect all the necessary information beforehand. You'll find this tool on the first SBS 2008 DVD in the Tools folder; just run SBSAfg.exe on any XP, Vista or Server 2000 (or later) machine. The only prerequisite for this tool is .NET Framework 2.0.

The Installation Worksheet covers all the required data such as disk layout, company information, server and domain names, network administrator name and account name, internet connection details and router configuration.

If you've got more than one SBS 2008 to install, your new friend is the answer file generator;

Windows Small Business Server
Windows Small Business Server 2008
multiply your power
Related Sites
Get started with Windows Small Business Server
Get the demo
Windows Small Business Server 2008
See for yourself how Windows Small Business Server can help keep your data more secure and your company more productive.
Download it now
If you don't have SBS 2008 but want to give this Masterclass a go, you can download the demo version from Microsoft's SBS 2008 web site.


Answer File tool: this feature is our bet for the award "most loved tool by IT consultants".
SBS2008RC1 on localhost - Virtual Machine Connection
File Action Media Clipboard View Help
Windows Small Business Server 2008 Answer File Tool
Installation type
New installation
Migration from existing server (Join existing domain)
Installation settings
Get installation updates
Run unattended
Clock and time zone settings
Manually set the clock and the time zone for the server
Use the following time zone:
(GMT+10:00) Brisbane
NOTES
You cannot set the system clock automatically by using an Answer File. Before you start the installation on the server, ensure that the clock on the server's BIOS is set to the correct time.
If you select the option to set the clock and time zone manually, then you will be prompted to set the clock during unattended installations.
Trial security services
Windows Live OneCare for Server
Microsoft Forefront Security for Exchange Server
NOTE
The availability of these security services may vary by geographic regions. For more information about security services, see the Microsoft Web site.
Server information
Server name
APCSERVER
Internal domain name
APC
Full DNS name
apc.local
Company information
Business name
APC
City
Sydney
Street address 1
123 APC Street
State / Province
NSW
Street address 2
Zip / Postal code
2020
Country / Region
Australia
Certificate authority name
Start
Windows SBS Console
tools
Windows Small Busin...
Tell Me More About Usin...
5:31 PM
Status: Running

this allows you to easily provide the information for each screen in setup, essentially making it an automated affair.

Select 'New installation' and fill in all the pertinent fields. If you leave anything out, the setup program will prompt for only that information during setup. Leave the Certificate Authority blank; this will configure the CA to be called Domain-ServerName-CA, which is fine. If you do enter something in this field, make sure it's not the same as your external network domain.

When you've completed the wizard, save the file as sbsanswerfile.xml on a USB stick and then insert this during the setup of SBS, or copy the file to the root of any drive of the server. It really is that simple.

If you want to make the entire installation automatic, you also need to provide an autounattend.xml file for the Server 2008 part of the installation.

SIZE IS EVERYTHING

The basic disk space recommendation is for the system disk to be at least 60GB. Beyond this, Microsoft provides some guidance: separate data storage across three volumes, one for the system, one for application data and one for user data. Data stores such as Exchange databases, SharePoint data, Shared folders, Users' redirected My documents (etc.) can all be moved easily using wizards after the installation.

Allocate 2GB per mailbox user for Exchange data; for shared data, estimate 50GB plus 2GB for each user. For a basic server, the recommendation is to use RAID 1 (with 100GB+ disks) for each data store; in a medium or high utilisation, set the system drive up on mirrored drives (RAID1) but store application data and user data on separate RAID 5 arrays for higher performance. These are loose guidelines only, as storage needs vary.

CLEAN INSTALLATION

Your test server needs to have a network adapter with drivers included in Windows Server 2008; alternatively, you can install a driver during setup. This NIC also needs to be connected to a router or switch; in other words, you need to have a link light. This is necessary so that AD and other services can install successfully. If you have a working internet connection, the installation program will pick this up and configure accordingly, but you can install without an internet connection.

Insert the first DVD and boot the server. On the first page, select 'English (Australian)' and leave the other choices at default. The next screen is simple; just click 'Install now'. Enter your product key on the next page; you might want to uncheck 'Activate online' so you'll be able to choose when activation takes place. Then continue by accepting the licensing agreement.

Click 'Custom (Advanced)' on the next page and select which drive to install on. If you need to install a storage driver (for a RAID array, for instance) click 'Load driver'; drivers can be located on a USB stick or other media.

When you click 'Next', a normal Windows Server 2008 installation will take place, usually taking between 15 and

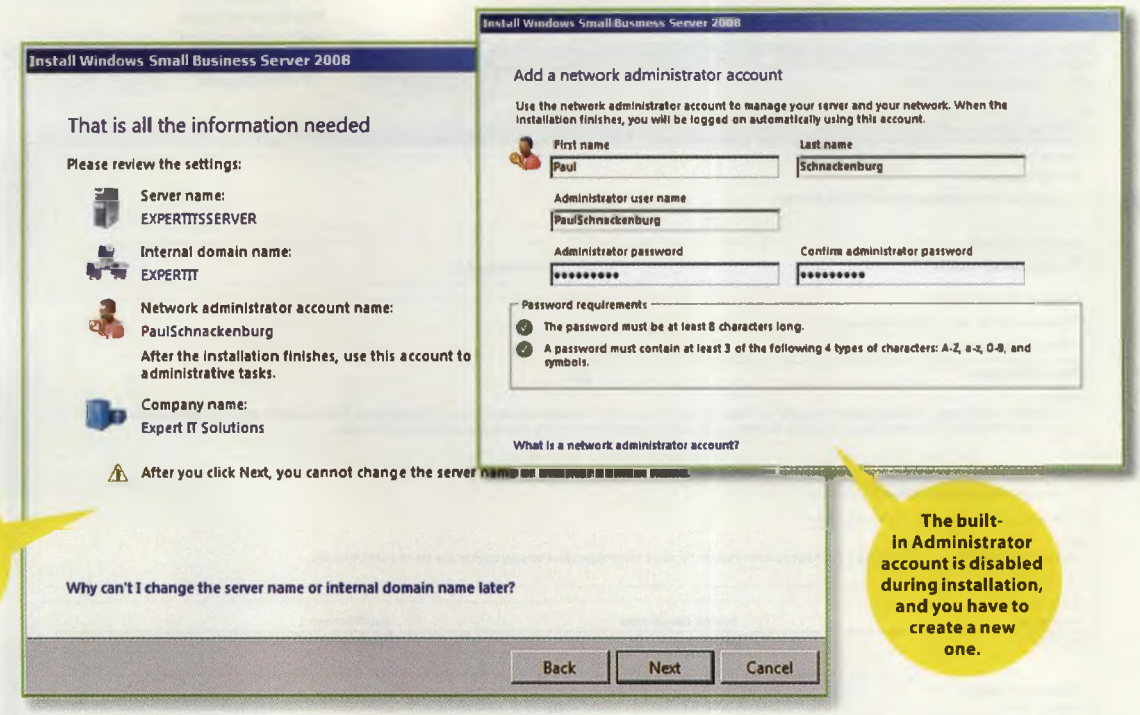
MORE ABOUT... Licensing

Like its predecessor, SBS 2008 comes in two flavours, Standard and Premium. Premium adds a licence for a second server. Standard will cost US$1,089. Premium will be US$1,899. A standard CAL (Client Access License) is US$77. A Premium CAL is US$189.

Like with other Microsoft software, you can "downgrade" SBS. That is, you can run SBS 2003 Standard instead of SBS 2008 Standard until you're ready to upgrade using an SBS 2008 licence. The same goes for SBS 2003 Premium and SBS 2008 Premium. An SBS 2008 CAL can be used in an SBS 2003 network.

NOTE:

These articles are geared towards the accidental IT systems/network administrator. The person whose extra responsibility it is to keep the computers running in a small business, just because they know more about computers than anyone else. IT consultants wanting to pick up tips and tricks on SBS 2008 should also be well served. And for the intrepid business owner with an eye to installing a server by themselves, SBS 2008 is just streamlined enough that this is possible.


Install Windows Small Business Server 2008
That is all the information needed
Please review the settings:
Server name:
EXPERTITSSERVER
Internal domain name:
EXPERTIT
Network administrator account name:
PaulSchnackenburg
After the installation finishes, use this account to administrative tasks.
Company name:
Expert IT Solutions
After you click Next, you cannot change the server
Why can't I change the server name or internal domain name later?
Back
Next
Cancel
Install Windows Small Business Server 2008
Add a network administrator account
Use the network administrator account to manage your server and your network. When the installation finishes, you will be logged on automatically using this account.
First name
Paul
Last name
Schnackenburg
Administrator user name
PaulSchnackenburg
Administrator password
Confirm administrator password
Password requirements
The password must be at least 8 characters long.
A password must contain at least 3 of the following 4 types of characters: A-Z, a-z, 0-9, and symbols.
What is a network administrator account?

Make sure everything is correct before you click Next.

The built-in Administrator account is disabled during installation, and you have to create a new one.

MAJOR IMPROVEMENTS IN SECURITY, COLLABORATION AND CONNECTIVITY

30 minutes, depending on your hardware. The server will restart a couple of times during this phase.

SETUP

The next screen gives the option of checking the time and date; go ahead and make sure they're right. Following this is the opportunity to download updates for the setup program itself; if the server is connected to a network with internet access, choose this option. Don't worry about intruders; Windows firewall is active during the installation.

The next page lets you enter your company information, and this is carried across to the page after that, where the suggested server and domain name is based on the business name you gave.

Creating an administrator account is next; unlike SBS 2003, password complexity requirements are already enabled, so come up with a good password. A summary of the information you've entered is displayed before you commit. Be aware that the server name and domain name cannot be changed after this point without a complete reinstall. Perhaps even print out a copy of the names or use the answer file generator and have the business owner sign off on the spelling before you proceed.

If you have Macintosh computers in your network, you need to change the .local domain name suffix that is suggested by default: common options are .lan or .office.

Again, sit back and relax as the server setup is completed; the server will restart several times during this process. Once complete, you should get a screen saying Successful Installation and a link to Start using the server.

This leads you to the new SBS console and the Getting Started list and next month's article. If you have SBS Premium, the next step after that is setting up the second Windows Server 2008 and possibly SQL Server 2008, if that's what you're dedicating that server to.

POST INSTALLATION

If you have any installation issues, these appear at the end on a screen categorised as warnings or errors. There's a link to export these, which will wrap up installation log files along with other pertinent information; this .zip file can be sent to an experienced technician or to Microsoft support.

Other errors commonly seen show themselves in the event log; they include:

- DCOM Event 10016 with error message "The application-specific permissions settings do not grant Local Activation for the COM Server application with CLSID XXXX...". This is related to SharePoint version 3. Consult KB 920783 if you get this error.
- MSExchange Search Event 4625 can be logged with text "Failed Security audits in the Security log..."; this error can safely be ignored.
- DCOM Event 10009 can potentially be logged lots of times; it's due to one or more clients having communication issues with the server. The first place to check is the firewall on the client. Remote Management needs to be allowed if using Windows firewall, and if using a third party firewall, both TCP port 135 and 139 need to be open, as well as dynamic ports for RPC over 1025. If it's an XP SP2+ machine on a different subnet to the SBS server, you'll need to edit the Client XP GPO to change the scope of three firewall rules.

SBS 2008 is a great product. Initially cautious, I'm now warming to it day by day. It takes the SBS experience (for both admins and end users) to a new level, with many useful features. Install it yourself and try it out! APC

INSIDE INFO...

USEFUL URLs

SBS 2008 Tech Library
http://tinyurl.com/62lv7g

SBS 2008 Installation Worksheet
http://tinyurl.com/57tzpv

Deploying Windows with an Autounattend.xml file
http://tinyurl.com/6fqyw3

Connecting Mac OS X 10.3 and Higher Clients to a Windows Small Business Server 2003 Network
http://tinyurl.com/9p8cu

Installing the second server in SBS 2008 Premium
http://tinyurl.com/6k3axc

DCOM Event 10016 – KB 920783
http://tinyurl.com/6zgdq4

Known post installation event errors in SBS 2008
http://tinyurl.com/6ormem

IN THIS SERIES

In this new Masterclass series, **Jarrod Spiga** explains the 'science of servers': everything you need to know in order to get the most out of your server setup.

APC EXPERT

JARROD SPIGA

Jarrod Spiga is the Senior Infrastructure Engineer for Visionbytes, a company that captures video and audio from a number of different sources. Jarrod's primary role is the design and management of all of the infrastructure that is used to provide these solutions: this accounts for over 100 high-availability servers located in Sydney and Singapore.

WHAT'S NEXT?

PART 2
FEBRUARY '09
SERVER COMPONENTS

PART 3
MARCH '09
SERVER FORM FACTORS

PART 4
APRIL '09
BLADE SERVERS

PART 1 OF TWELVE THE SCIENCE OF SERVERS

What makes a server a server?

Ever wondered about the difference between the hardware that makes up a typical server and that of a typical desktop PC?

Servers are the cornerstone of corporate infrastructure, relied on to provide the services that employees and customers need to perform day-to-day tasks. The single most important attribute of most enterprise-grade servers is reliability, and a good level of fault tolerance is factored into the design of most servers to increase uptime.

Many readers run servers in their own home. They are the headless Linux box in the corner of the study that provides email, web server, DNS, routing and file sharing services for the home. While these machines still constitute servers in a raw sense, it would take a brave Technology Officer to put their faith in trusting these types of servers to fulfil the IT requirements of their company.

This guide demonstrates what differentiates business-class servers from the typical white-box server that you can build from off-the-shelf components and highlights some of the many factors of a server's design that needs to be considered in order to provide reliable services for business.

FORM FACTOR

Servers come in all shapes and sizes. The tower server is designed for organisations or branch offices whose entire infrastructure consists of a server or two. From the outside, they wouldn't look out of place on or under someone's desk — but the components that make up the server's guts are often of a higher build quality than PC components. Tower cases are generally designed to minimise cost whilst providing smaller businesses with some sense of familiarity with the design of the enclosure.

For larger server infrastructures, the rack-mount case is used to hold a server's components. As the name suggests, rack-mount servers are almost always installed within racks and located in dedicated data rooms, where power supply, physical access, temperature and humidity (among other things) can be closely monitored. Rack-mount servers come in standard sizes — they are 19 inches in width and have heights in multiples of 1.75 inches, where each multiple is one Rack Unit (RU). They are often designed with flexibility and manageability in mind.

Lastly, the blade server is designed for dense server deployment scenarios. A blade chassis provides the base power, management, networking and cooling infrastructure for numerous, space-efficient servers. Most of the top-500 supercomputers these days are made up of clusters of blade servers in large data centre environments.

MEMORY

While the physical RAM modules that you see in today's servers don't differ dramatically from consumer parts, there are numerous subtle differences to the memory subsystems that provide additional fault-tolerance features.

Most memory controllers feature Error Checking and Correction (ECC) capabilities, and the RAM modules installed in such servers need to support this feature. Essentially, ECC-capable memory performs a quick parity check before and after read or write operations to verify that the contents or memory have been read or written properly. This feature minimises the likelihood of memory corruption due to a faulty read or write operation.

The other main difference in memory controller design is how much RAM is supported. Intel-based servers are about to start utilising a memory controller that is built on to the processor die, as has been the case with AMD-based systems for years. Even the newest mainstream memory controllers support a maximum of 16GB of RAM. HP has recently announced a "virtualisation-ready" Nehalem-based server design that will support 128GB of RAM, which will be available by year's end.

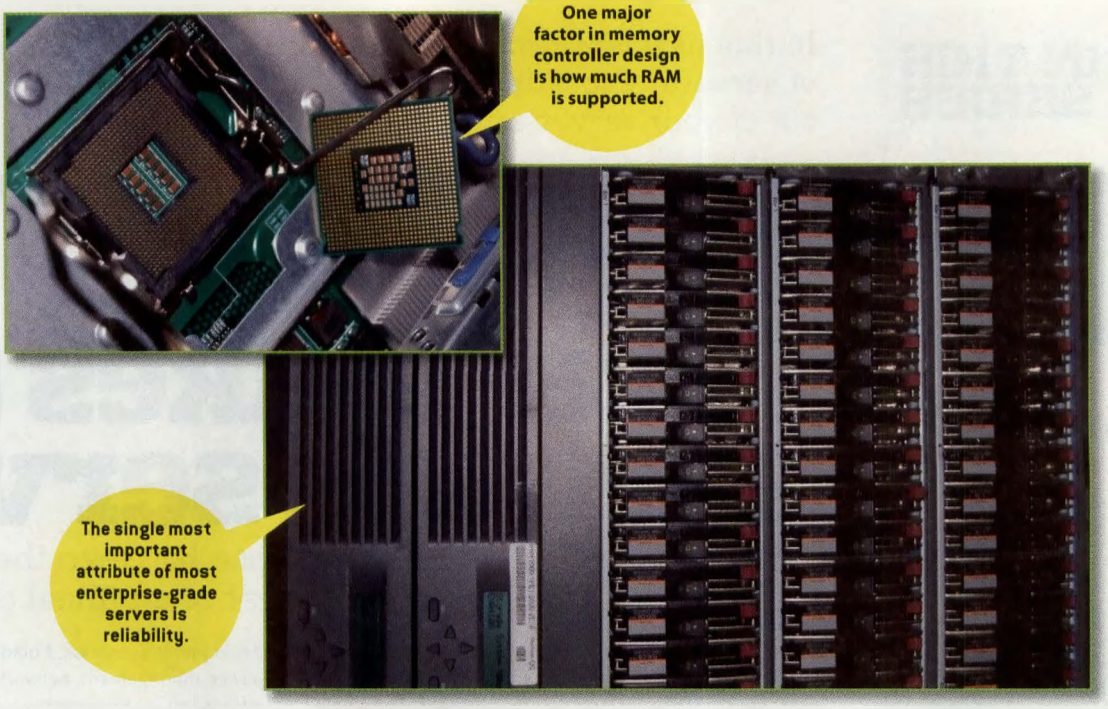
Many modern servers provide mirrored memory features. A memory mirror essentially provides RAID-1 functionality for RAM — the contents of your system memory are written to two separate banks of identical RAM modules. If one bank develops a fault, it is taken offline and the second bank is used exclusively. The memory controller of the server can usually handle this failover without the operating system even being aware of the change, preventing unscheduled downtime of the server.

Hot-spare memory can also be installed in a bank of some servers. The idea here is that if the memory in one

MORE ABOUT... Processors

With the proliferation of quad-core processors in the mainstream performance sector of today's computing landscape, the main difference between servers and workstations that you will see comes down to the support for multiple sockets. Consumer-class Core 2 and Phenom-based systems are built around single-socket designs that feature multiple cores per socket — and cannot be used in multi-socket configurations. Xeon and Opteron processors, on the other hand, provide interconnects that allow processes to be scheduled across multiple separate processors featuring multiple cores to contribute towards the total processing power of a server. It's not uncommon to see quad-socket, four-core processors in some high-end servers — providing a total of 16 processing cores at upwards of 3Hz per core. The scary thing is that six- and eight-core processors are just around the corner...

The other main difference that you see between consumer and enterprise processors is the amount of cache that is provided. Xeon and Opteron processors often have significantly larger Level-2 and Level 3 caches in order to reduce the amount of data that has to be shifted to memory, generally resulting in slightly faster computation times depending on the application. A server's form factor will also have an impact on the type of processor that can be used. For instance, blade servers often require more power-efficient, cooler processors due to their increased deployment density.


One major factor in memory controller design is how much RAM is supported.
The single most important attribute of most enterprise-grade servers is reliability.

bank is determined to be faulty, the hot-spare bank can be brought online and used in place of the faulty bank. In this scenario, some memory corruption can occur depending on the operating system and memory controller combination in use. The worst-case scenario here usually involves a crash of the server, followed by an automated reboot by server recover mechanisms (detailed later on in this article). Upon reboot, the memory controller brings the hot-spare RAM online limiting downtime.

Hot-swappable memory is often used in conjunction with both of the features — giving you the ability to swap-out faulty RAM modules without having to shut down the entire server.

STORAGE CONTROLLERS

Drive controllers are dramatically different in servers. Forget on-board firmware-based SATA RAID controllers that provide RAID 0, 1 and 1+0 and consume CPU cycles every time data is read or written to the array. Server-class controllers have dedicated application-specific integrated circuits (ASICs) and a bucket-full of cache (sometimes as much as 512MB) in order to boost the performance of the storage subsystem. These controllers also frequently support advanced RAID levels including RAID 5 & 6.

The controller cache can be one of the most critical components of a server, depending on the application. At my place of employment, we have a large number of servers that capture video in HD-quality at real time. A separate "ingest" server often pulls this data from the encode server immediately after it has been captured for further processing and transcoding. Having 512MB of cache installed on the drive controller allows data to be pushed out via the network interface before it has been physically written to disk, significantly boosting performance. Testing has revealed that if we reduced the cache size to 64MB, data has to be physically written to disk and then physically read when the ingest process takes place, placing significant additional load on the server. Finally, consider that most mainstream controllers have no cache whatsoever — the impact on performance in this scenario would probably prevent us from working with HD-quality content altogether.

But what happens if there is a power outage and the data that is in the controller cache has not yet been written to the disk? In order to prevent data loss, some controllers feature battery backup units (BBUs) that are capable of keeping the contents of the disk cache intact for in excess of 48-hours or until power is restored to the server. Once the server is switched on again, the controller commits the data from the cache to the disk array before flushing the cache and continuing with the boot process. No data is lost. BBUs are another feature missing from mainstream controllers.

THE PROBLEM WITH RAID 5

Traditionally, RAID 5 has been the holy grail of disk arrays, providing the best compromise between performance and fault-tolerance. However, with the continual increase in storage density, RAID 5 is starting to exhibit a significant flaw when the array has to be rebuilt after a disk failure.

RAID 5 arrays can tolerate the failure of a single drive in the array. If during the time that it takes to replace the faulty drive and rebuild the array, a second drive fails or an unrecoverable read error (URE) occurs on one of the surviving drives, the rebuild will fail and all data will be lost.

Most manufacturers will quote the probability of encountering a URE in the detailed specifications sheet for each drive. Most consumer grade products have a quoted URE of ~1 in 1,014 — which translates to an average of 1 URE encountered for every 12TB of data read. Now, imagine that you have a RAID-5 array containing four 1.5TB drives (which are now readily available) and one disk goes pear-shaped. You replace the faulty drive and the rebuild process begins — and 1.5TB of data is read from each of the remaining drives in order to rebuild the data on the new disk. Assuming that you have "average" drives, there's

4.5TB RAID-5 ARRAY

CONSISTING OF FOUR-1.5TB DRIVES (ASSUMING URE OF 1 IN 1,014)

PROBABILITY OF...	EQUATION	RESULT
URE on 0 drives	0.8753	0.669921875
URE on 1 drive	3 * (0.8752 * 0.125)	0.287109375
URE on 2 drives	3 * (0.875 * 0.1252)	0.041015625
URE on 3 drives	0.1253	0.001953125
Probability of rebuild failure	0.287 + 0.041 + 0.002	0.330078125 (33.008%)

4.5TB RAID-6 ARRAY

CONSISTING OF FIVE-1.5TB DRIVES (ASSUMING URE OF 1 IN 1,014)

PROBABILITY OF...	EQUATION	RESULT
URE on 0 drives	0.8754	0.586181640625
URE on 1 drive	4 * (0.8753 * 0.125)	0.3349609375
URE on 2 drives	6 * (0.8752 * 0.1252)	0.07177734375
URE on 3 drives	4 * (0.875 * 0.1253)	0.0068359375
URE on 4 drives	0.1254	0.000244140625
Probability of rebuild failure	0.072 + 0.006 + 0.000	0.078857421875 (7.886%)

> TRADITIONALLY, RAID 5 HAS BEEN THE HOLY GRAIL OF DISK ARRAYS

around a 33% chance of encountering a URE while rebuilding the array, which would result in the loss of up to 4.5TB of data.

Back in the days when we were dealing with arrays containing five 32GB disks, the probability of a URE occurring during array rebuilds was miniscule. But nowadays, it's not uncommon to see array configurations exceeding 2TB in size, containing eight or more large-capacity drives. As a result of the increased number of drives and the increasing capacity of those drives, the probability of encountering a URE during the rebuild process is approaching the stage where RAID 5 arrays are unlikely to be successfully rebuilt in the event of a drive failure. And the more, larger-capacity drives that you use in an array, the more likely a URE will occur during the rebuild.

RAID 6 is the solution that is commonly used to overcome the limitations of RAID 5. RAID 6 utilises two different parity schemes and distributes these parity blocks across drives in much the same manner as RAID 5 does. The use of two separate parity schemes essentially allows two drives in an array to fail while maintaining data integrity. While RAID 5 requires n+1 drives in the array, RAID 6 requires n+2 — so you'll be assigning the capacity of two whole drives to parity instead of one.

If the server that you're building does not require a large amount of disk space, RAID 5 may be perfectly acceptable. However, if you're deploying a large number of drives or large-capacity drives in your server, you'll want to ensure that you have a drive controller that supports RAID 6.

It should also be noted that while RAID 6 overcomes the issues that are starting to become prominent with RAID 5, RAID 6 will exhibit the same problem if used with larger arrays and drives of larger capacities than we have today. But until this day comes, RAID 6 remains a more reliable fault tolerance scheme than RAID 5.

THE MATHS

Regardless of the scenario, we assume that all 1.5TB needs to be read from all drives in the array in order to perform a successful rebuild. This gives us a 12.5% probability of encountering a URE on a single drive (1.5 / 12 = 0.125), and an 87.5% probability of not encountering a URE (1 - 0.125 = 0.875). As you can see from the tables on the right, you're much more likely to achieve a successful rebuild with a RAID-6 array — however, even this probability of success is lower than what some would desire. This only re-enforces the fact that RAID-6 is significantly better than RAID-5, but will also experience the same issues assuming that URE rates don't increase with disk capacity. On a side note, I was the unfortunate victim of a rebuild failure due to UREs about a year ago – I accidentally knocked a power cord out of a seven-250GB drive RAID-5 NAS enclosure (the enclosure was four years old and did not support RAID-6, but we did have it configured with one hot-spare drive). Knocking the cable out abruptly killed one of the redundant power supplies, which took one of the drives with it. The hot-spare drive was activated and the array began to be rebuilt. About five hours into the rebuild, a URE occurred and the rebuild failed. It's just as well we had that 1.5TB worth of data backed up on to a second array as well as LTO tape — this goes to show RAID arrays are not the be-all-and-end-all of fault tolerance.

As a bonus to our readers, the next part of this server Masterclass is now online at **apcpro.com.au**, our site for tech professionals. It covers external storage, disk drives, GPUs and video, networking and power supplies

DISCUSS ONLINE...

Have you registered at the APC Pro Forum at *apcpro.com.au*? As we get into the more technical aspects of servers, you might notice that space limitations don't allow certain topics to be covered in depth. If you have any question about this series, or about server hardware in general, we will do our best to answer your questions. Other readers are also encouraged to help each other.

IN THIS SERIES

Did you build a web site and nobody came? **Ash Nallawalla** walks you through everything you need to know in order to optimise your web site for search engines so as to generate traffic and get hits on your site.

APC EXPERT

ASH NALLAWALLA

Ash manages natural and paid search traffic for some of Australia's largest web sites. He is an internationally acknowledged expert in search marketing, and he previously operated an SEO training business. You can read more about him at his blog **www.netmagellan.com**. Ash can be contacted at **seo@acpmagazines.net.**

PART 5 OF TWELVE SEARCH ENGINE OPTIMISATION

Understanding search engines

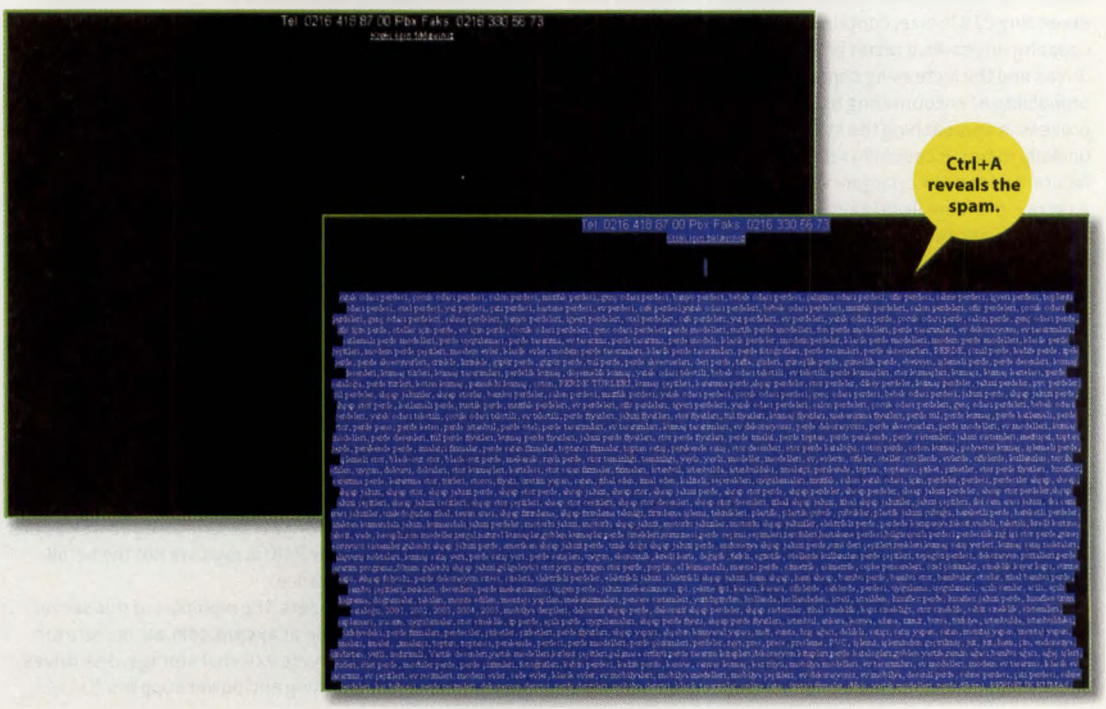
This month we're rolling up our sleeves to apply the theory we've learned to a real project.

The first task in performing SEO is to understand the end game for the web site. What does the customer (or your boss, or you) want to achieve?

RANKING GOALS

Web site owners always want the best for themselves and they are paying you because you (their SEO) can satisfy their need. You need to know their "money terms" — the keyphrases that will get them the most qualified traffic that will convert into sales. You cannot optimise to reach a specific position, eg. number one rank for everything. You do your best based on your experience and learning, but then you have to hope for the best — the customer needs to understand this, in a legal context.

The latest SEO slogan is "Ranking is dead". Some US states are already seeing a version of Google Search with a "Customised for [location], [state]" result. Behavioural targeting will be more common, and it is possible that no two people will see the same sequence of search results. Now, this makes it impossible to deliver an SEO service based on rankings, but it does not mean that we can ignore rankings. With the right preparation, you can get a web site to rank higher for numerous keyphrases; therefore, the web site will get more targeted traffic.

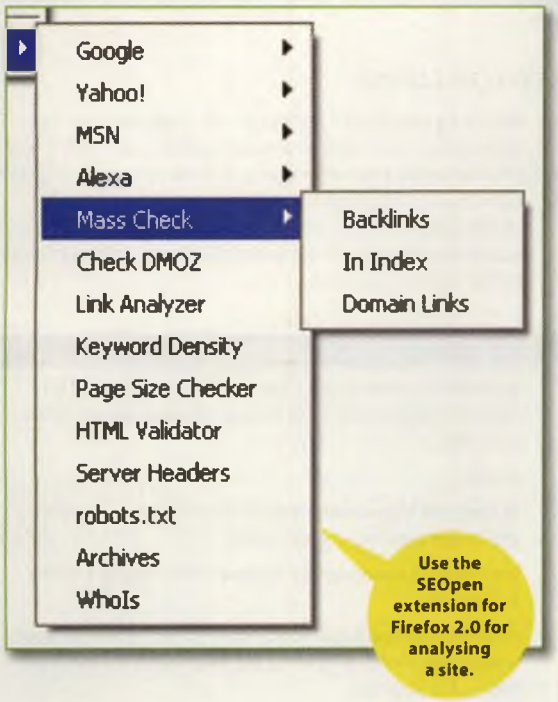


WHAT'S NEXT?

PART 6
FEBRUARY '09
KEYPHRASE RESEARCH

PART 7
MARCH '09
IMPLEMENTING SITEMAPS

PART 8
APRIL '09
SOCIAL MEDIA OPTIMISATION



ENGAGEMENT OBJECTS

Increasingly, web sites that contain "engagement objects" will do well on the web. These can be one or more features that engage the reader, such as video clips, podcasts, forums, polls, surveys, forms, comments, ratings, reviews and so on. Most sites can and should implement at least one of these.

SITE AUDIT

You can't measure progress or otherwise unless you have a starting point and a suitable tool that measures changes from that point.

1 PAGE ELEMENT CHECKLIST

The following checklist (for each page) is ordered in order of importance. It is not necessary to load the lesser scored items (scored out ouf ten)on every page (or contrive to load the heavier items on every page):

2 FINDING HIDDEN TEXT

Press Ctrl+A to select everything on a page, which will show hidden text. Usually such text is at the bottom of a page and a giveaway clue is that there seems to be a large bottom margin. This must be removed.

3 TRAFFIC MEASUREMENT

For basic traffic measurement, use the statistics tool supplied in the hosting control panel. If none is installed, then you should ask the web site owner to install the free Google Analytics, available at **www.google.com/analytics/**.

QUESTION	SCORE
Are there **inbound links** using keywords as **anchor text**? Eg. an **external page** linked to the home page with the text "London Accommodation" is better than the word "Click Here" linked to our home page (if we want to boost the ranking for "London Accommodation"). Similarly, text in **internal pages** on our site can have the words "London Accommodation" linking to our home page (only if it looks OK).	10
Does the **Title Element (tag)** start with the desired keyphrase for the page?, eg. "Web hosting specialists" suits a page about "web hosting".	10
Does the **domain name** contain the keyphrase, eg. "londonaccommodation.co.uk" is a good* domain name for targeting the keyphrase "London Accommodation". (*requires backlinks to use this keyphrase as the anchor text).	7
Does each page (or product) have **just one URL** on the site?	5
Is there a Heading Level 1 **(H1)** containing the main keyphrase?	5
Does the **first sentence** contain the **main** keyphrase?	5
Does the **pathname** (directory) contain the keyphrase? Eg. /web-hosting/filename.php	4
Does the **filename** contain the keyphrase? Eg. /domain-names/renew.php.	4
Are the desired **keyphrases proximate** to one another?	4
Are other keyphrases towards the **beginning** of sentences?	1.5
Are important keyphrases in *italics* or **bold**?	1
Are **other keyphrases** present in the body text (not at beginning of sentences)?	1
Where an image is used as a link, are **Alt** tags present?	0.5
Does the **meta Description** tag contain the main keyphrase?	0.5
Does the **meta Keywords** tag contain the main keyphrase first, followed by others?	0.25
Are there keyphrases in the **last paragraph** of the page?	0.2
Are there outbound links to major **authority sites?**	0.1
Are **title attributes** (not title tag) used, eg. in link, img, table etc.?	0
Is there a **meta title** (not Title tag) in the **header?**	0
Are there keyphrases in **comment tags?** (Not good.)	-5

MORE ABOUT...

WHITE HAT OR BLCK HAT?

SEO ethics involve your willingness to abide by the guidelines for webmasters set by the major search engines. If you don't follow them, there is a good chance that your web site will not rank high in a search. In an extreme situation, your site might be removed from the index.

"White Hat SEO" means ethical SEO; "Black Hat SEO" means unethical SEO; however, there is a grey area aptly labelled "Grey Hat SEO". Unethical in this context means fooling the search engines or performing tricks that show something to a spider and something else to the human visitor. Some operators do not use such labels but they believe that anything that the search engine does not catch is OK. We do not recommend Black Hat SEO. For more info see: **http://snurl.com/4ub6k**

UNOPTIMISED SITES

NO TWO UNOPTIMISED SITES POSE THE SAME SEO CHALLENGE.

Some contain coding errors that don't break the page, but are nonetheless undesirable, as the page may get distorted in a future browser. The following is an example of code bloat at the *apcpro.com.au* web site that makes the page a little slower to load.

This code isn't "bad" but wastes time and computer resources on a large site. The "revisit-after" tag is copied blindly by many, many ignorant web designers — in fact, its presence is an indicator that the site needs SEO. It was created solely by and for a local Vancouver search engine called SearchBC (*http://vancouver-webpages.com/*) whose spider VWBot_K uses that tag to schedule its crawls of web sites within British Columbia. It is worthless for the rest of the world.

CODE	COMMENT
<meta http-equiv="Pragma" content="no-cache" />	This forces the server to serve a fresh copy of each page even if the visitor has a cached copy in their browser. Why tax the server? I'd omit these lines.
<meta http-equiv="Cache-Control" content="no-cache" />	As above.
<meta name="ROBOTS" content="NOARCHIVE" />	This tells well-behaved search engine robots to not keep an archive copy of each page. Why? I'd omit this line.
<meta name="COPYRIGHT" content="© 1980-2008 ACP Magazines Limited" />	Unnecessary to assert copyright. Mention it in the footer of the home page just once.
<meta name="KEYWORDS" content="XP, Windows, Linux, Mac, Vista, OS X, iPhone, APC, Australian Personal Computer, Australia, PC, hardware, dual-boot, dualboot, tech news" />	Never show keywords that do not appear on the page in question. Limit to about eight phrases or 15 words. Only Yahoo! takes any note of this line, but it is necessary.
<meta name="AUTHOR" content="APC Magazine" />	I'd omit this line. No search engine uses it.
<meta http-equiv="CONTENT-LANGUAGE" content="en-US" />	This is not bloat, but en-au is appropriate for Australian web sites.
<meta name="revisit-after" content="7" />	(see below)
<meta name="keywords" content="" />	Duplicated, empty tag. Remove
<meta name="description" content="" />	Keep, but fill with some compelling description.

DON'T ASSUME THAT ALL THE COMPETITOR TACTICS ARE HELPING THEM

MORE ABOUT... CONVERSION GOALS

There is always some reason why people build a web site. Whether the purpose is commercial or not, a major objective is to attract eyeballs. This is *targeted traffic*, not random people. Typical conversion goals include:

- Sale — purchase something online
- Complete an enquiry form (lead generation)
- Sign up — subscribe to a magazine

4 SEARCH ENGINE ANALYSIS

If you have an existing site, you should perform some basic checks on the three major search engines:

- Number of inbound links (backlinks)
- Number of pages in the index
- Ranking for desired keyphrases

Tools for Analysing a Site

The quickest way is to use the SEOpen extension for Firefox 2.0, which has a convenient option called Mass Check, then check all three options. If you use Firefox 3.0, use the SearchStatus extension available from **www.quirk.biz**.

SEOpen will tell you:

- The number of inbound links (IBLs), but bear in mind that Google shows a tiny sample, whereas Yahoo! and Live Search show more. This includes deep links.
- The number of pages indexed.
- The number of IBLs pointing to the root domain. This is fewer than the total number of IBLs.

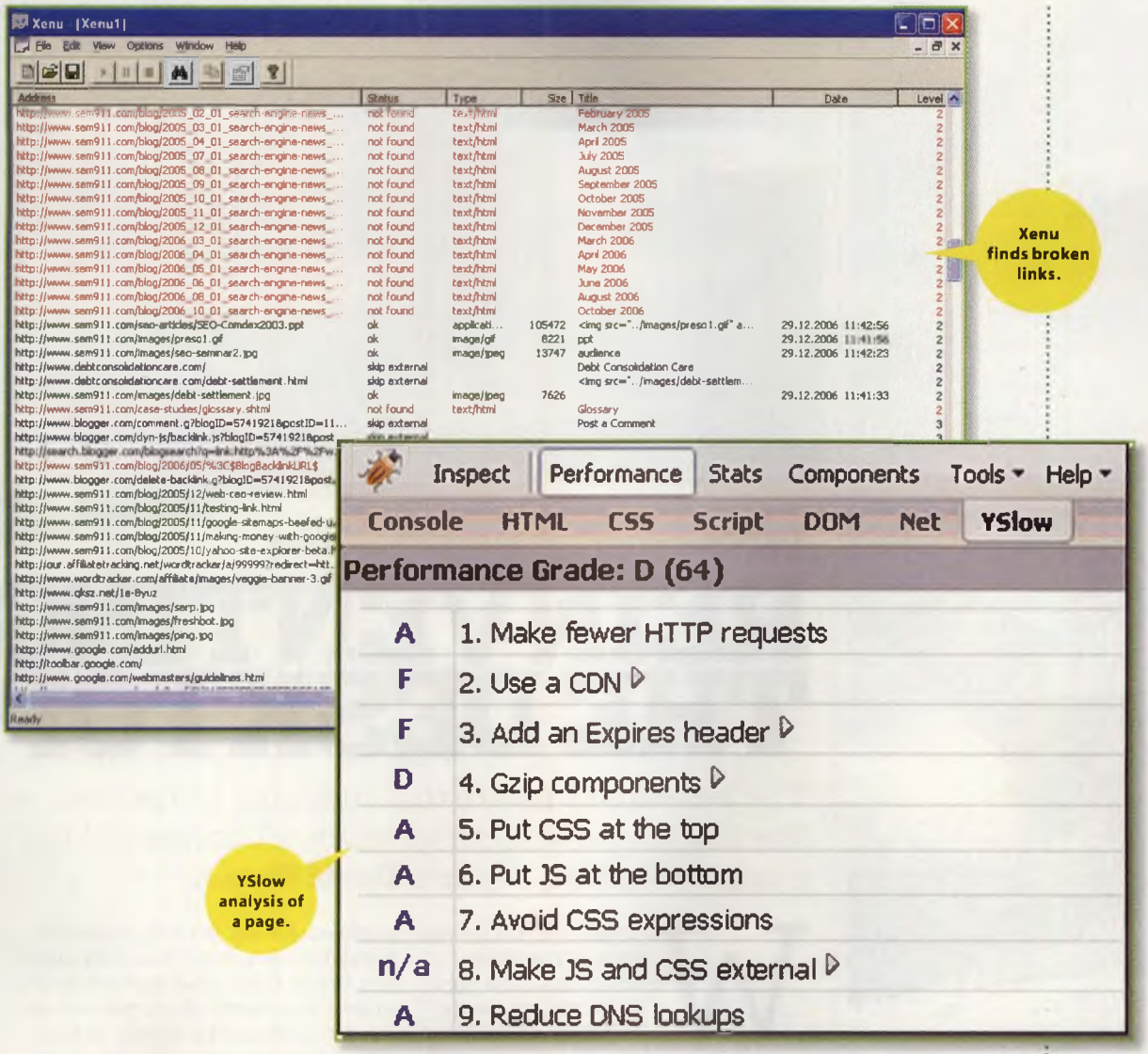
You can also check Google's **Webmaster Central** for Google-specific issues, provided that the sitemap has been submitted to it.

Now we have some idea of the scope of the problem.

5 COMPETITOR ANALYSIS

You should identify and study competitor web sites:

- Read their robots.txt file to see if they have anything useful in the excluded directories.
- Study their Keywords meta tags, as this may reveal what they are targeting and give you some new keyphrases you had not thought of.
- Use the link: operator to find IBLs and their anchor text. Note those sites for contacting later when you need similar links. If you notice a pattern emerging in the anchor text, you will know which terms are important to your competitors.
- Take note of internal links and their anchor text.
- View the pages to see if they use tables or CSS-P (table-less positioning with CSS). If they use tables, you want to change your client's site to CSS-P if feasible, to make it leaner and improve keyword density and text-to-tag ratio.


Xenu finds broken links.
YSlow analysis of a page.
Performance Grade: D (64)
A 1. Make fewer HTTP requests
F 2. Use a CDN
F 3. Add an Expires header
D 4. Gzip components
A 5. Put CSS at the top
A 6. Put JS at the bottom
A 7. Avoid CSS expressions
n/a 8. Make JS and CSS external
A 9. Reduce DNS lookups

- Read the Google cache for their key pages to see if they differ from what you see on the page. If so, cloaking could be in use.
- If their web designer or SEO has given themselves a link, check out their sites and their portfolio of customers, in case you find tactics to copy.
- Don't assume that all the competitor tactics are helping them to rank. Some might get them demoted the next time Google updates its algorithm.

6 FIXING ACCESSIBILITY ISSUES

While you must address human accessibility errors, mainly for legal compliance in many countries, you must also consider the accessibility to spiders.

Broken links

Use a free tool such as Xenu to find broken links on an existing site. Broken links not only frustrate the visitor but will cause the search engines to not see parts of your site. Fix all broken links! See: **http://home.snafu.de/tilman/xenulink.html**.

Functionality of interactive elements

Any content that is behind a search box should be considered for being exposed, provided that this is commercially desirable and technically feasible. For example, a directory may have millions of records behind a search box — and the business managers now want to make them visible via search engines.

This could be a simple matter of removing a restriction in the robots.txt file, or an additional reworking of the code to ensure that the search engines can display something that is meaningful to the searcher, ie. not some navigation text.

Speeding Up the site

Various speed-up tactics can be used to make the site accessible to spiders, and humans will also appreciate a fast site:

- Use valid XHTML code and move JavaScript and style content to external files.
- Get a faster, reliable web server with less downtime.
- Use the Firefox 2.0 web browser with the Firebug and YSlow extensions to find speed tips.

DISCUSS ONLINE...

Have you registered at the APC Pro Forum at *apcpro.com.au*? As we get into the more technical aspects of SEO, you might notice that space limitations don't allow certain topics to be covered in depth. If you have any question about this series, or about SEO in general, Ash is monitoring the SEO forum and will do his best to answer your questions. Other readers are also encouraged to help each other.

Your potential. Our passion.
Microsoft
Who makes sure 18,000 Continental Airlines crew members are ready for takeoff?

PART 4 OF FOUR VIRTUALISATION

REINVENTING THE DESKTOP

The benefits of the virtual machine movement are starting to show themselves in all corners of the business sphere, reports **David Braue.**

When your business involves processing up to one million cheques per night, the last thing you need is for technology to get in the way of BPO's (business process outsourcing) benefits. But that's exactly what happened to Qui Truong, former infrastructure team leader with a very large financial services provider.

Faced with growing volumes and higher costs, the company has been shifting part of its back-end processing services to remote workers. Their job consists of looking at scanned images of cheques, deciphering the handwriting and entering the amount into NCR's ImageMark image processing system.

The problem: once the images started being sent over narrow telecommunications links, the process was slowing. Operators that could process 2,500 items an hour over fast in-house devices found that high latency (170ms on average) was slowing them down to around 500 to 700 images per hour.

"We provided remote workers with fast clients and knew it would work as long as they had an IP connection," says Truong. "It did work, but because of the high latency, users were actually able to key faster than the system could provide images. We had to find a way to boost performance to make the whole venture worthwhile, but there was no way our carrier could get down to the 40 to 60ms latency we needed. The only way we could do this and keep most of the traffic on the local network was to go with a virtual desktop solution."

The company considered a traditional thin-client solution from Citrix Systems, but found it was incompatible with ImageMark. It then tried virtual desktop infrastructure (VDI) technology from VMware, which runs desktop images as virtual machines on a central server and lets users interact with their own, personalised virtual machine from afar.

Performance increased slightly with VMware, but after eight months of trials operators were only managing around 700 items per hour. It was then that Truong tried Citrix's XenDesktop application, which used Citrix's well-established ICA (independent computing architecture) thin-client technology and its Xen virtualisation platform across 18 VDI servers that can run more than 500 virtual desktops simultaneously. Since

each virtual desktop has its own copy of the ImageMark client, compatibility is not an issue, as in the unsupported XenApp environment.

"That was our turning point," Truong remembers. Within a short time, performance had increased so far that the more than 200 offsite operators were consistently handling over 1,000 items per hour. Increasing familiarity with the technology has boosted this to over 1,500 items per hour — all while reducing the cost and complexity of desktop management.

PACKAGING YOUR IT

Virtualising desktops fundamentally changes the way companies' IT infrastructures operate. The change is so significant that Gartner recently named virtualisation as the top priority for IT organisations for 2009, with VP Dave Cearley telling attendees of the Symposium/ITxpo conference that it is "the most disruptive technology in your infrastructure".

To understand the fundamental power of a virtual desktop environment, consider your average shipping port. Each and every product brought through a port comes in a TEU (twenty-foot equivalent unit), a standard 6.1 x 2.4 x 2.6m container. It doesn't matter what you put into a TEU: because they're all standard-sized, they can be stacked in and on boats in regular piles; loaded onto standard-sized trucks and trains for transport; and stored in standard-sized warehouses and distribution facilities.

A virtual desktop infrastructure works the same way: it doesn't matter how your individual desktop is configured, because the data centre servers only care that they know how to handle the container it's inside. That container is a virtual machine (VM), which exists in a logical sense as nothing more than a file stored on a hard drive somewhere.

Plug the VM into a hypervisor and it runs exactly like a normal desktop; move the VM to another drive and it runs just as well. This makes the technology invaluable for disaster recovery, since a virtual desktop can be easily bounced from one server to another if the primary server fails.

Since they exist only as a file on disk, virtual desktops become far more portable. VMware's ACE technology, for example, allows users to store their virtual desktop on a memory stick that is instantly booted when they plug it into a computer with a compatible hypervisor on it.

"The fundamental observation is that, as a person, your applications and data represent your digital persona," explains Raghu Raghuram, VMware's VP of data centre and desktop platforms. "That should be attached to you as a person, but, in the way that technology is currently constructed, it's attached to your device. So, if you lose your device and go to use the next guy's laptop, it's impossible to get your own digital persona."

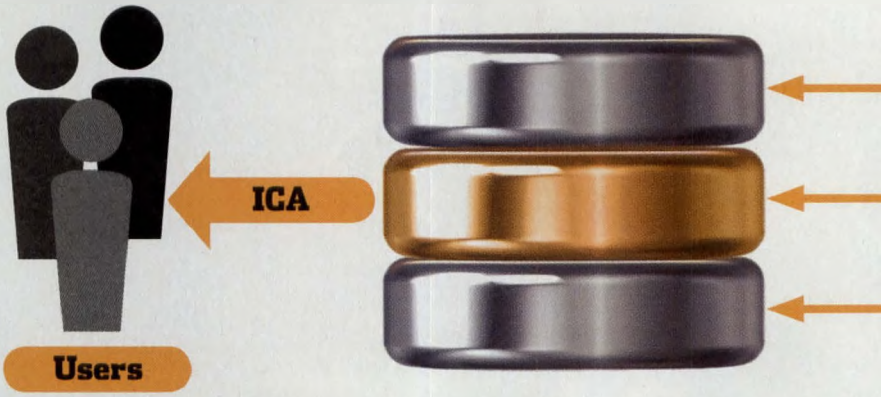
BUILDING A BETTER DESKTOP

As companies continually look for ways to reduce the cost of providing desktop PCs, they're warming to the value of servicing users from high-performance data centre

Windows Server 2008. The server unleashed.
Flight crews don't have an office to check into. At Continental Airlines, they have the Web-based Crew Communications System, where they log on, check schedules, and trade shifts. To ensure everyone arrives on time, they migrated to Windows Server 2008. Get the full story at microsoft.com.au/unleashed
IT 24-7
Windows Server 2008

DESKTOP VIRTUALISATION

A QUICK LOOK AT HOW CITRIX'S XENDESKTOP VIRTUALISATION WORKS



servers instead of far-flung PCs. For example, backup becomes dead easy: since all existing backup solutions support normal files, companies can back up their employees' entire desktops by copying the VM file to a backup drive.

"We didn't have to back up our desktops before, since there was nothing to back up," Truong explains. "But there's a situation where there's less risk in upgrades to the core application; before a major update, IT staff can just back up the virtual machine files. If there's an issue, rollback simply requires restoring the VM files from our previous backup — which is a half-hour job, rather than having to spend days rolling back every desktop machine."

A recent IDC study found that companies using virtual desktops instead of conventional ones reported a return on investment of up to 466 per cent — with savings coming from the ability to manage desktops from a single place and deliver them to users with simpler, more reliable and far less expensive thin clients on their desks.

A conventional thin-client environment offers similar ease of access, but thin-client desktops are far more complicated to manage since they exist only within the thin-client server's own domain. Backing them up works much like backup from a standalone desktop, with all the attendant frustrations and complexities. Furthermore, whereas thin-client environments present licensing complexities and don't support all applications, a virtual machine is a complete operating system instance capable of running anything a standalone desktop could.

This makes it far easier to deal with than a conventional desktop. "The reason people are looking at this type of technology is that they have traditional desktop management systems in place but still have problems with their desktops," says Toby Knight, ANZ manager of systems engineering and solution architecture with Citrix.

"They have these three- to five-year desktop replacement cycles, and have to form project teams to go out and deploy a new standard operating environment; it ends up being a pretty big operational and capital cost, and they have all sorts of operational change to manage."

WHEN A DESKTOP ISN'T

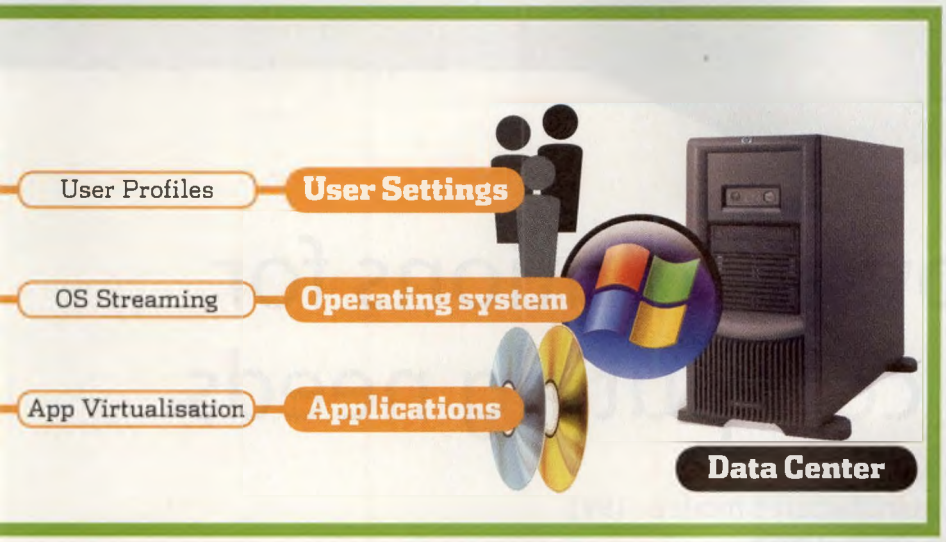
The trend is so promising that IDC believes it will boost sales of thin clients by 21.4% annually through 2013. Gartner recently predicted that nearly 40 per cent of companies will be using hosted virtual desktops by 2010.

With desktop virtualisation showing all the promise of rapid growth, virtualisation vendors have rushed to fill out their product lines with VDI solutions and strategies. VMware's vClient initiative, for example, will bolster its VDI offering with numerous additional management tools in 2009, while Citrix Systems is building out its XenDesktop range in a similar fashion.

Citrix's XenApp takes a slightly different approach, following the lead of Symantec subsidiary Altiris, VMware's ThinApp, and Microsoft's Microsoft Application Virtualization (App-V) technology, which the company acquired with its recent purchase of SoftGrid.

Application virtualisation (also known as 'application streaming' because apps can be downloaded on-the-fly) takes virtualisation to an even lower level by wrapping each application in its own small virtual package. Each application is layered onto a base operating system image, then runs in its own container throughout its life.

Just as graphical images are created by combining many different image layers, virtual desktops can be built using layers, each with its own virtualised application. If an application needs to be updated or changed, it can be pulled from the virtual desktop, and the new one slotted in its place without affecting the rest of the system. It's like replacing a block in the middle of the Jenga tower without letting the higher-up blocks tumble.



This approach extends to user data, as well: by creating another virtual container just for storing files, companies can manage users' personal data in the same way they manage the desktop. Virtual file systems can be associated with virtual desktops, backed up and moved between servers for reliability.

"One thing we're aiming for with the virtual desktop is to provide a better user experience," says Knight. "Our focus is on decoupling the system from the hardware, decoupling the applications from the operating system, and decoupling the user data and profile settings from the applications. By doing that, we can create an environment where we can deliver a pristine desktop each time, dynamically build the user's environment at runtime and dynamically update the components."

EVERYTHING'S VIRTUAL

Mobile devices are part of the longer-term story: because virtual desktops are so easy to move around and run on any device with a compatible hypervisor, they can also be moved onto mobile devices — whether smartphones or slightly more-capable netbooks. VMware drew the line in that particular segment of the market with the November launch of its Mobile Virtualisation Platform (MVP), which the company designed to "help handset vendors reduce development time and get mobile phones with value-added services to market faster".

In its initial incarnation, MVP won't let you load your Windows Vista desktop onto your smartphone just yet; such devices still lack an x86-compatible architecture and the grunt to realistically deliver such a capability.

Rather, MVP could be adopted by mobile phone makers to help developers roll out new applications across multiple mobile operating systems, without having to develop separate ports for each. VMware is already talking up the promise of secure, isolated mobile OS instances as well as tamper-proof DRM, user authentication and billing.

Whether on the smartphone or on the desktop, the spread of virtualisation will totally transform the way applications are delivered. No longer forced to manage software on physical devices in many offices to constantly shifting standards, desktop administrators will be able to turn the desktop as we know it into just another application delivered online.

Taken to its natural limits, there's no reason that a company even has to run its own virtual desktop servers. Several desktop outsourcers are already exploring this market, allowing companies to lease access to virtual desktops that run in the outsourcer's data centre; companies only pay for access to those desktop images and leave the management and responsibility for the entire desktop environment to the outsourcer.

This approach will gain currency as Microsoft's recently-announced Azure joins similar 'cloud computing' initiatives from Google, Amazon, EMC, Sun Microsystems and most other major IT industry players. Cloud computing shifts total IT responsibility onto a large-scale service provider, providing applications and user desktops on demand over robust telecommunications links.

Cloud computing is fundamentally tied to virtualisation in all its forms, apportioning computer resources as necessary in order to run all manner of capabilities. Gartner, among others, sees such promise in the concept that, within five to ten years, it believes most corporate IT departments will be structured as little more than internal cloud computing providers, delivering applications and desktop environments to users on the fly.

If your head isn't yet in the clouds, don't worry: the technologies to make virtual desktop computing an everyday event are still very much in development. But with each small win, the story becomes ever more complete – and the promise of a completely virtual IT infrastructure, and its myriad benefits, inches ever closer.

Your potential. Our passion.
Microsoft
Windows Server 2008. The server unleashed.
24-7
Dell.com is one of the world's largest and most advanced e-commerce sites. As a technology leader, Dell relies on Windows Server 2008 for the flexibility and reliability needed to support a mission-critical environment where downtime is not an option. Get the full story at microsoft.com.au/unleashed
Windows Server 2008

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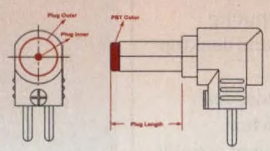

Outer	Inner	Length	PBT Colour	Application
4.75	1.7	9.5	Yellow	ACER / ASUS / COMPAQ / HP
5.5	1.7	12	Orange	ACER
5.5	2.1	12	Blue	ACER / COMPAQ / GATEWAY / HITACHI / IBM / NEC / SHARP / TOSHIBA / TWINHEAD/WINBOOK
5.5	2.5	12	Green	ACER / COMPAQ / FUJITSU / GATEWAY / HITACHI / HP / IBM / NEC / PANASONIC / PHILIPS / SAMSUNG / SHARP / TOSHIBA / TWINHEAD / VIEWSONIC / WINBOOK
6.3	3.0	12	Green	ACER / ASUS / COMPAQ / HP
6.5	4.3	9.5	Yellow	SONY
7.4	5.0	12	Black	DELL
7.9	5.6	12	Black	IBM / LENOVO

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THIRD-GEN MOUSE: BLUE TRACK

Microsoft has re-invented the mouse with its new Blue Track technology. Dubbed the 4WD of mice, the Explorer series utilises new blue laser technology so they work on any surface. Uhm. . . except clear glass.

What's hot & not
TECHNOLOGY THERMOMETER

FIRST-GEN BALL MOUSE

These are still standard issue in many companies despite their lack of accuracy and poor handling. Though, we're sure we all have fond memories of slamming these against our desks in a vain attempt to free the desk-jam encrusted ball inside. Not!

DOWNTIME REVIEW

PSP-3000

Sony's updated the PSP hardware with a smooth, new look and a brighter screen — but content is king.

Out of the box, the PSP-3000 looks, feels and weighs just like its slim and lite predecessors; the design ergonomics were never its problem area. The model we tested was the fingerprint-attracting, super-shiny piano finish model. Apart from the roundification of buttons and icon changes, the only 'real' cosmetic change is a built-in microphone for Go!Messenger or Skype chatting — this has been added to the unit's lower edge.

The biggest problem hampering the PSP is its inability to be effectively played in all light conditions — contributed to by the piano finish and reflective nature of the unit as well as the screen itself — and Sony's promise of "an advanced LCD screen supporting higher image quality, offering crisper colours with more definition when used outside in natural light" really made us want to believe the PSP had grown up and could finally be counted as a viable portable entertainment device. Sony has come to the party, well, they've RSVP'd at least. The 4.3in LCD screen on the 3000 is significantly brighter — colours do appear more vibrant with richer colours, and there is less ghosting of images, and in achieving this, the refresh rate of the screen has been increased. Which means, and we are being picky here as the problem isn't that bad, during high-motion playback and gaming, some interlacing issues — jagged lines and scan lines — are present.

As decent a gadget as it is, the media is what's holding the PSP back. There are only one or two truly great titles solely for the PSP (God of War: Chains of Olympus and Wipeout Pulse) and as such, it'd be tough to highly recommend the 3000 as a new purchase or upgrade.

Troy Coleman

7/10

$299

five
HI-POWER @ PLAY

01 SHINTARO 1.5in PHOTO KEYRING

The days of carrying around a single, dog-eared photograph of the family in our wallets is over. Now you can carry around 56 of your favourite digital photos on a keyring! Shintaro has released a 1.5in LCD photo keyring that is easy to use, with photos simply added or updated via a built-in USB port. Fully rechargeable, with around two hours of viewing time per charge, this is one device that will definitely come in handy to show off pics of the family at your next social do. Just keep them away from those annoying uncles that love to torture their families with overly long slideshows paired with dull commentaries... please.

.: CONTACT Shintaro
.: ONLINE www.shintaro.com.au
.: PRICE $19.95

02 GORILLAPOD GO-GO!

The Gorillapod Go-Go! is a one-of-a-kind mobile entertainment kit that allows you to position or attach your handheld devices almost anywhere. From cell phones to MP3/MP4 players to PDAs to digital cameras, this freaky-looking mini-tripod can handle practically any device in virtually every situation. With the Gorrilapod, you can now watch movies on your iPod or iPhone hands-free. Plus, you can attach a webcam or standard video camera for online/Skype calls and conferences. With a choice of colours and fittings to allow the most alternatives for any user, the Gorillapod is a truly handy toy for any technophile.

.: CONTACT Joby
.: ONLINE www.joby.com/store
.: PRICE $34.95

03 EYECLOPS NIGHT VISION GOGGLES

Although you may see this in the toy section of many department stores, the Eyclops nightvision googles are not a toy: they really do work. A built-in infra-red torch allows the user to see in total darkness for a distance of up to 15 metres, which is more than adequate for anything short of a covert military assault (not recommended, by the way). The nightvision effect looks just like you see in the movies. Who would have thought that sneaking up on the kids and scaring the crap out of them would be so much fun! We're sure that there are probably more noble uses for a device such as this, but we can't think of one right now.

.: CONTACT Funtastic
.: ONLINE www.funtastic.com.au
.: PRICE $139.95

04 SONY DPF-V900 S-FRAME

Along with smartphones, GPS devices and MP3 players, digital photo frames have become one of the hottest-selling tech items in recent years. The new DPF-V900 digital photo frame from Sony displays digital images at a resolution (800 x 480 pixels) with a 15:9 aspect-ratio screen to showcase your digital pictures with detail and clarity. Using a Bluetooth adaptor, the frames can import images wirelessly from a Bluetooth-device such as a mobile phone or camera. With in-frame photo corrections and oodles of other features, this is more than just a simple LCD display. Much more.

.: CONTACT Sony
.: ONLINE www.sony.com.au
.: PRICE $140

05 WINDOWS SERVER 2008 BIBLE

This book is aimed at the needs of the server administration community and extensively covers the most notable new feature of Windows Server, known as the "Server Core." With everything you need to know to get yourself using Windows Server 2008 proficiently, this massively thick book clears up any questions you may have about policy-based networking, branch management and enhanced end user collaboration and a host of other topics. This one is definitely for the pros as a certain amount of base knowledge is assumed. Still, to get the most out of your server using Windows, this is the ticket.

- CONTACT: Wiley
- ONLINE: www.johnwiley.com.au
- PRICE: $82.95

06 HANCOCK (BLU-RAY)

If you've ever wondered what Superman would be like if he had emotional issues and a drinking problem, then Hancock answers many of these questions. With a great performance as the misfit superhero Hancock, Will Smith looks likes he's having a ball as he delivers the one-liners amidst hilarious jaw-dropping action sequences. What starts out as a brilliant concept gets a little lost two-thirds of the way in, as a major twist sends the story off onto an entirely unexpected direction. But, what is essentially a good story with likeable characters recovers to provide one of the best Blu-ray movies this year.

- CONTACT: Sony Pictures
- ONLINE: www.sonypictures.com.au
- PRICE: $44.97 (Blu-ray)

07 THE X-FILES: I WANT TO BELIEVE

Mulder and Scully are back — and are sharing a bed! The X-Files returns with this alien-free story of a pedophile psychic (Billy Connolly of all people) who has a mysterious mental link with the victims of illegal organ traders. So naturally, the FBI enlists the now romantically involved Mulder and Scully to look into this bizarre case. This film doesn't feel like an X-Files story. The only 'spooky' thing about it is the involvement of a psychic. The lack of aliens doesn't make it bad, though, as the story is interesting and surprisingly dark. Fans will get a kick out of seeing their heroes in action (in and out of the bedroom).

- CONTACT: Twentieth Century Fox
- ONLINE: www.foxmovies.com.au
- PRICE: $42.95 (Blu-ray)

08 QSTARZ TRAVEL RECORDER NANO

The Qstarz BT-Q1300 Travel Recorder Nano is a keyring-sized device that turns your smartphone into a GPS! With Bluetooth capability, you can now hit the road in your car or on your bike and have the Nano follow your route so you can visualise your travel path when you get home. If you have a Bluetooth-capable camera, you can also Geotag any photos you take on the way through the Nano! A support button can also manually memorise your location (to make a waypoint). With 12 hours of battery life and the ability to log up to 200,000 travel records, the Qstraz Travel Recorder Nano will keep track of wherever you are.

- CONTACT: Qstarz
- ONLINE: www.qstarz.com
- PRICE: $170

Quikfix

Released soon

FRACTURE

An FPS from the questionable minds at Lucas Arts, Fracture suffers from a severe case of generic-itis. It could easily be mistaken for any other shooter, realises this, then tries to fool players by cramming in the forced mechanic of terrain deformation. Don't say we didn't warn you.

CRYSIS: WARHEAD

As a standalone expansion to the original, Warhead gives players around six or so hours more of the heart-stopping FPS action presented in benchmark-nudging, hardware-melting eye candy. The protagonist's suit has been tweaked, as has the overall pacing of the action. Nice and tidy.

MYSTERY CASE FILES: MILLIONHEIR

Are you good at finding things? How about spotting hidden objects? If the answer's yes, then MillionHeir will suit you to a tee. When "eccentric millionaire" Phil T. Rich goes missing, you're called in to solve the case by hunting for clues in numerous scenes of interest. Great for younger players or those after some casual portable gaming.

de Blob

Peter Dockrill gets blobby wit' it.

Things aren't looking too colourful in ol' Chroma City. The evil INKT Corporation has taken over the town, stamping out all the colours and rendering everything in a monotonous monochromatic blandness. What's a blob to do, huh? Well, starting a revolution to overturn the evil overlords and bring a splash of colour back to the place wouldn't be a bad start. And so Aussie developer Blue Tongue Entertainment's de Blob begins, with you as the titular character: essentially a blob of liquid with the ability to absorb various paint colours. Once you've taken a colour on, you can then smear it wherever you like, revitalising buildings and landmarks as you go. Some puzzles call for mixing colours, while time- and objective-based missions provide a bit of variety. The core painting concept is pretty enjoyable (and the design of the characters and the game world overall will certainly bring a smile to your face) but we were disappointed that the title didn't go a little further: at its heart, despite the allure of mess-making on a metropolitan scale, de Blob is a pretty conventional platform game. Lots of fun, though.

AVAILABLE PLATFORMS: PC-DVD, Wii, PS 3, NINTENDO DS

CONTACT THQ
ONLINE www.thq.com.au
PRICE $79.95 (Wii)

✔ Colourful mess-making; charming design.

✖ Not as groundbreaking as it could be.

VERDICT ★★★½☆

A riot of colour: de Blob has you getting messy in Chroma City.

Fable II

Between work and family, **Troy Coleman** is finding it tough to squeeze in some adventuring.

An unconventional fairy tale, Fable II takes place in the fantasy realm of Albion and tells the tale of a humble street urchin whose ultimate destiny is to combat a great evil threatening the land. The main story isn't too long, but the real hook and longevity is in the side missions, working to earn money (with bartending yielding the greatest gains), buying and selling property, and interacting with the other inhabitants of the realm, which can quickly lead to marriage, kids and, if you're unlucky, an STD. This being an adventure RPG, getting out and about for some exploration, excitement and adventure is a certainty. Once out of the main town, it doesn't take long to realise just how big, richly decorated and dangerous Albion is. It's lucky you're also a dab hand at fighting, as aside from friendly townfolk, everything seems to want to kill you. With a mix of the physical and magical, combat Fable II is fun and accessible. Slowing time, raising the dead and confusing the enemy are our favourite magics. Two-player cooperative mode is available, but it's tough to recommend for two reasons. Only the player hosting the game can play with his/her character, the other being relegated to a generic henchman. Also, in co-op, the third-person camera angle is switched out to a Diablo-style isometric view, which makes it pretty painful to see clearly.

AVAILABLE PLATFORMS: PC-DVD, Wii, PS 3, XBOX 360, DS

CONTACT Microsoft
ONLINE www.lionhead.com/fable2/
PRICE $99.95

✔ Fun, accessible combat; addictive.

✖ Short 'main' story arc.

VERDICT ★★★★☆

Toprate

You've gotta try...

SAINTS ROW 2

After getting blown up at the end of the first game, your character (who is fully customisable) wakes up from a coma in prison and immediately starts a one-man revenge-oriented crime spree. Although it sounds anti-social, it's a hell of a lot of fun.

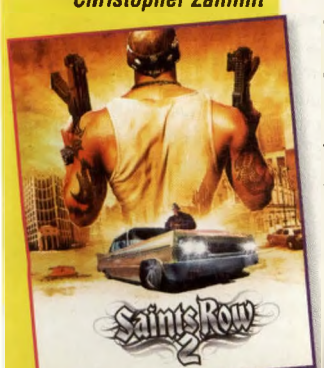
Although we can definitely see the similarities, this isn't a cheap rip-off of Grand Theft Auto. One thing that Saints Row 2 has, that the GTA franchise seems to have lost, is a sense of humour and a willingness to not take itself too seriously. This light-hearted approach to such a dark subject matter makes for a unique experience.

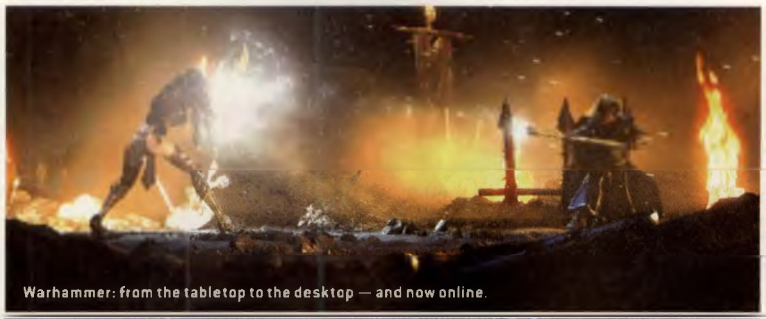
With so many hours of gameplay built into Saints Row 2, you may think it might become a little repetitive; not so. With customisation features to play with and plenty of insanely useless crap to collect, you'll find yourself exploring this crime-riddled city for quite some time.

Once you've spent a good few weeks finishing the single-player game, some even heftier cooperative and multiplayer modes await your attention.

Available on both PS3 and Xbox 360, this has to be one of the most enjoyable gaming experiences of recent times.

Christopher Zammit





Warhammer: from the tabletop to the desktop — and now online.

Warhammer Online: Age of Reckoning

Nick Race battles with Orcs, Elves and crushed mouse buttons.

Massively Multiplayer Online games are big business, but as those that have come and gone know, also a very tough game to play in. This year's big news was the much disparaged Age of Conan and Warhammer Online: Age of Reckoning (WAR), the computerised version of one of the biggest tabletop tactical games on earth.

WAR seeks to address the issues many players have with the incumbent World of Warcraft, building the game around a solid core of PVP playstyles, World PVP combat and alternate levelling options for when grinding is just getting too much. Mix that with an extremely rich vein of lore and you're in for a heavy gaming souffle.

WAR revolves around the classic good vs evil conflict, named Realms in this incarnation. Each Realm is made up of three races with a unique character class for each, with a total of 22 playable classes. They're formed from classic archetypes like a Warrior, Priest, Caster etc., so it's not as complex as it sounds.

Levelling can be done either by standard questing solo or in groups, but also by PVP'ing in set encounters called Scenarios, or via open-world PVP. Interestingly, WAR's world changes to a small degree based on the actions of each Realm. Either side can take and hold keeps in the landscape, earn experience for their city, opening up new areas and obtain control of each zone for bonuses to experience and renown.

Essentially, it's a good game. Not perfect by a long shot, with player issues stemming from some unbalanced skills, the repetitiveness and occasional long queues of Scenarios. Though PVE content is there, it's not the mainstay of the game, so be prepared for plenty of PVP, especially at the level cap.

.: AVAILABLE PLATFORMS

PC-DVD | ~~Wii~~ | ~~PS3~~ | ~~PS2~~ | ~~XBOX 360~~ | ~~DS~~

.: CONTACT EA

.: ONLINE www.warhammeronline.com

.: PRICE $99.95 plus subscription

✔ Solid PVP action; great lore and design.

✖ Light on PVE; slow levelling.

.: VERDICT ★★★½☆

chipchat

BY PETER DOCKRILL

Windows 7
The New Editions
It's that time of the decade again!
Windows 7 Starter Edition
Windows 7 Home Basic, Home Premium, Home Basic Premium and Home Premium Basic
Windows 7 Tablet Edition, MID Edition, UMPC Edition Fancy Smartphone Edition and Cash Register Edition
Windows 7 Voting Machine
Windows 7 Business, Small Business and Windows 7 Big Business
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The result of an exclusive joint venture with a third-party developer, Microsoft introduces Windows® 7 Secure Edition. The first PC operating system to not require expensive antivirus protection, bar one. Not compatible with other versions of Microsoft Windows® 7.
Windows 7 Institutional Edition, featuring Windows 7 Supranational Entity Edition
Windows 7 Gaming Edition
Windows 7 Ultimate and Windows 7 Penultimate Edition
Windows 7 Pirated Edition
Confused? We certainly are. Just as with practically everything in the music and software industry, there's only one way to be sure it's actually yours and that you got everything you paid for. Still on every street corner in Eurasia for a couple of bucks.
Buy Now!
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Cross-grade!
Downgrade!

Collect all 20!

What with all the kerfuffle that presented itself when Vista was launched — in a staggering, sales-friendly *six* different editions — it was only a matter of time until Windows 7 was exposed to a similar level of pre-release scrutiny and cynicism, and here's the start. Boing Boing Gadgets recently published an "exclusive leaked ad" detailing all *20* (!) separate upcoming editions of Windows 7. Which will you choose? Windows 7 Starter Edition, sold in "emerging markets such as Brazil, India and Detroit"? Or Windows 7 Voting Machine Edition, engineered to the "rigorous standards" demanded by the election industry ("maintains no records whatsoever"). No? Perhaps you'd best opt for Windows 7 Secure Edition (pictured). Ouch. More at **http://tinyurl.com/4qox2t**.

Windows 7 Secure Edition
The result of an exclusive joint venture with a third-party developer, Microsoft introduces Windows® 7 Secure Edition. The first PC operating system to not require expensive antivirus protection, bar one. Not compatible with other versions of Microsoft Windows® 7.

Separated at birth?

Okay, now this is more than a bit spooky. NewScientist.com celebrated Halloween recently by assembling a gallery of "hair-raising images from space" [**http://tinyurl.com/5dqpf9**]. First and foremost is this absolute double-take: is that the evil overlord Sauron from Lord of the Rings? No? Are you quite sure about that? Hmph. Well, okay. It turns out that a "ring of dust around the bright star Fomalhaut looks uncannily like the Great Eye of Sauron in this image taken by the Hubble Space Telescope a few years ago. The image confirms that Fomalhaut's ring is curiously offset with respect to the star, suggesting that the gravity of one or more unseen planets is dragging the ring askew." So, that's a relief. Readers, sleep soundly at night, safe in the knowledge that an intergalactic Sauron is not actually plotting revenge on you and your Hobbit-like family.

12 angry men

Here's one for all the aspiring entrepreneurial-types out there: a bold Web 2.0-savvy robber in Washington used online classifieds community site craigslist.org to organise and recruit unwitting henchmen for a bank heist. After advertising a job opportunity ('road maintenance work', read: robbery) on craigslist.org and advising a dozen potential workers (read: decoys) to turn up at the work site (outside a bank) at a specified time wearing specified work safety clothing (yellow vest, safety goggles, respirator mask, blue shirt etc.), the thief committed his admittedly-well-thought-out crime, absconding from the scene with a bag of cash grabbed from an armoured truck guard. Apprehending the masked robber at the scene proved difficult — as he was surrounded by 12 similarly garbed job applicants! (However, Police did later catch their man.)

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DR-8000 (Drum)	$95
Colour Laser TN-04	$100

Compatible Cartridges for HP :

Laser Toner

HP-Q2612A	$ 48
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HP-Q2624A	$ 45
HP-C3903A	$ 55
HP-C3906A	$ 50
HP-C4092A	$ 50
HP-C4096A	$ 58
HP-C4127X	$ 75
HP-C4129X	$ 90
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C6656A (# 56)	$24
C6657A (# 57)	$26
C9396A-C9393A (# 88)	$16
C8767WA (#96)	$28
C9363WA (#97)	$32
HP-C8061X	$65
HP-92274A	$55
HP-92298X	$60
HP-Q1338A	$95

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Colour Laser	HP 2550	(Q3960A-Q3963A)	$70	$260
Colour Laser	HP 1600/2600/2605	(Q6000A-Q6003A)	$ 80	$320
Colour Laser	HP 8500/8550	(C4149A-C4152A)	$ 90/$150	$500
Colour Laser	HP 2500/LBP-2410	(C9700A-C9703A)/EP-87	$ 80	$300
Colour Laser	HP 4600/4650	(C9720A-C9723A)	$130	$500

Compatible Cartridges for Lexmark:

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E210	$55
E230/330/332 (H.Yield)	$65
E250	$65
E310/E312 (H.Yield)	$70
X215	$55

New Arrival!
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For PGI-5 & CLI-8

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	203A/204A	$50	
Coloue Laser	C525A Bk/C/M/Y	$65 ea	$240 (set)

Compatible Cartridges for Canon :

Laser Toner

Canon-Cart 303/Q2612A	$ 50
Canon-Cart-308 II/Q5949X	$ 55
Canon-Cart-309/Q7516A	$ 100
Canon-Cart-310 II/Q6511X	$ 68
Canon-Cart N	$ 65
Canon-Cart-U/EP-26	$ 50
Canon-Cart W	$ 50
Canon-E-31	$ 55
Canon-FX3	$ 45
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Canon-EPA/C3906A	$ 50
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T0491-T0496	$ 6	T050/T051/T052/53	$ 5/$7
EPL-5700 (S050010)	$60	EPL-5900/6100	$60
EPL-6200 (S050166)	$60	Drum EPL-5900	$80
Epson C1100/N	(S050190/187/188/189)	$ 65 ea	$240 (set)

Compatible Cartridges for Samsung :

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ML-1610D/2010D	$ 55	SCX-4200DA	$ 55
ML-1710D/SCX-4216	$ 55	SF-5100D	$ 55
ML-2250	$ 65	ML-4500D	$ 55
Colour CLP-300 B/C/M/Y	$ 35 ea	ML-5200	$ 85
Colour CLP-350 B/C/M/Y	$60/$50	Ink- M40	$ 20

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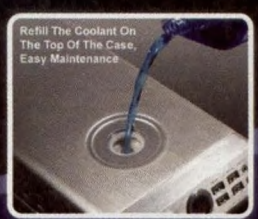

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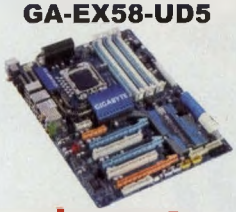

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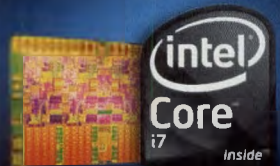

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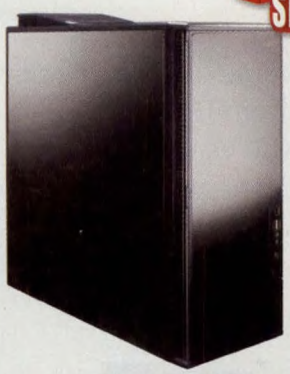

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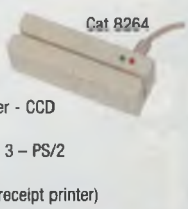

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